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IN MANAGEMENT INFORMATION,
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AIRMICS

Information Center Help Desk
Final Report

ASQB-GM-91-031
September 1991

AIRMICS
115 O'Keefe Building
Georgia Institute of Technology
Atlanta, GA 30332-0800

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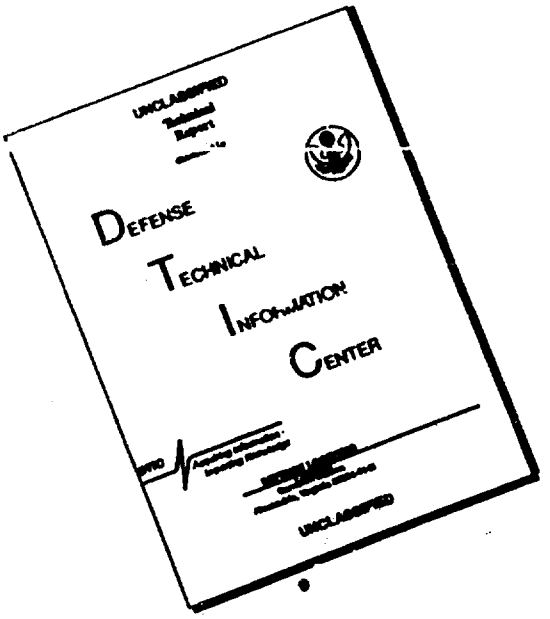

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Four major activities were included in this project: (1) the identification and classification of the types of Help Desk support typically provided by an Army IC; (2) a survey of technology, both hardware and software, that is available to specifically support the IC's Help Desk function; (3) data collection to support an evaluation of this technology with respect to its ability to handle the types of Help Desk support provided; and (4) production of a final report documenting the results of the surveys.

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THIS REPORT HAS BEEN REVIEWED AND IS APPROVED

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INFORMATION CENTER HELP DESK PROJECT

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INFORMATION CENTER HELP DESK PROJECT

FINAL REPORT

SECTION 1

PROJECT OVERVIEW

1.1 Scope

This task is based upon the research that AIRMICS has been conducting in the implementation and operation of Information Centers (IC) throughout the U.S. Army. AIRMICS' research has been on-going for approximately six years, with the most recent efforts aimed at investigating automated support for the IC functions, specifically in the area of automated support for the Help Desk function.

The objective of this project is to survey the existing technology that is available to support the Army Information Center "Help Desk" function. Perceived as probably the most important function of the IC, the Help Desk is characterized as an "on-demand" service that is plagued with a high turn-over of personnel, large and growing demands for assistance and inconsistent advice going to the user. One method to alleviate these problems is to automate the Help Desk function to the maximum extent possible.

This research will help identify and classify the types of Help Desk support currently being provided by existing ICs and provide information which will enhance the performance of the Help Desk function by identifying technologies that are available for use.

1.2 References

1.2.1 Final Report - IMA Integrated IC Guide Project, U.S. Army Institute for Research in Management Information, Communications, and Computer Sciences, June 1989.

1.2.2 Integrated IMA IC Guide, U.S. Army Institute for Research in Management Information, Communications, and Computer Sciences, June 1989.

1.2.3 Information Center Planning and Implementation Guide, U.S. Army Institute for Research in Management Information, Communications, and Computer Sciences, January 1987.

1.2.4 Statement of Work, Information Center Help Desk, for contract number DAKF11-91-D-0004, May 1991.

1.2.5 GTRI Proposal CSI-91-1018, Information Center Help Desk, May 1991.

SECTION 2

TECHNICAL ACTIVITIES

Four major activities were included in this project: (1) the identification and classification of the types of Help Desk support typically provided by an Army IC; (2) a survey of technology, both hardware and software, that is available to specifically support the IC's Help Desk function; (3) data collection to support an evaluation of this technology with respect to its ability to handle the types of Help Desk support provided; and (4) production of a final report documenting the results of the surveys. In the identification of software to support the IC particular attention was given to expert systems, hypertext or multimedia systems, neural networks and combinations of each. In the identification of hardware particular attention was given to PC-based solutions, network-based solutions and mainframe/mini-based solutions.

This project was completed in two phases. The first phase was an information gathering phase comprised of IC interviews and a survey of technology. The second phase was an evaluation and report phase in which evaluation information on hardware and software identified to support the Help Desk function was documented and a final report developed.

2.1 INFORMATION GATHERING PHASE

The Information Gathering Phase consisted of tasks 3.2, 3.3.1 and 3.3.2 as described in reference 2. The initial portion of the research concentrated on the literature search to identify specific software and hardware that is available to support the IC Help Desk function. A list of Army Information Centers was provided by AIRMICS.

2.1.1 Task 3.2

Task 3.2 required the identification and classification of the types of Help Desk support typically provided by an Army IC. The following research was accomplished to meet that task.

2.1.1.1 Literature Review

A literature review was conducted to familiarize the researcher with the latest work performed by AIRMICS as well as other institutions involved in the issues of implementation and development of Information Centers. A list of source material that was reviewed is at enclosure 1.

A literature search of a commercially available database that indexes major computer industry journals was also conducted. In searching this data base key words such as "help desk" and "neural networks" were used to identify articles that would pertain to this project. The results of the searches are at enclosure 2. The number of articles identified containing the word combination of "software help desk" in the same paragraph was 54. Of those 54 a number were identified as being directly relevant to the objective of this research project. Many of these articles contain product comparisons performed by unbiased evaluators. Using these articles, the IC manager will not be faced with having to purchase "blindly" but can identify software that will meet the stated requirements and thereby reduce the size of the field of products from which he has to make a choice. Through similar literature searches additional information is available to assist an IC manager to further enhance the automation of the Help Desk.

2.1.1.2 Checklist Development

A checklist based upon the IC services listed in AIRMICS' Information Center Planning and Implementation Guide was developed in order to assist in a telephone interview of the identified ICs. This checklist was used in the interviews to determine which services the IC performs by IMA discipline. From this checklist, some sense of the level of support for each of the IMA disciplines was determined. A copy of the checklist is at enclosure 3.

2.1.1.3 Visit to the General Purpose Computer Support Center

Based on AIRMICS' direction the trip to the General Purpose Computer Support Center was not included in this project.

2.1.1.4 Telephone Interviews

Each of the Information Centers originally identified was telephonically interviewed. The interviews were conducted using the list developed at enclosure 3. A copy of the completed checklists are at enclosure 4. Criteria established by the researcher to help determine the type of IC to be interviewed is at enclosure 5.
The list of those ICs to call was provided by AIRMICS. The complete address and phone number of the ICs interviewed is at enclosure 6.

2.1.2 Task 3.3

Task 3.3 required the identification of specific software

and hardware that is available to support the IC Help Desk function. Literature searches were conducted to identify software and hardware to perform this function. Magazines, catalogues and vendor brochures were used in the literature searches. A list of those is at enclosure 1.

2.1.2.1 Software

The software products identified through the literature search and included at enclosure 7 of this report represent only a portion of the many software products that exist to support the IC Help Desk. The software products included were chosen to provide a representative demonstration of the capabilities that are available on the market. The products vary based upon the platform (micro- to mainframe computer) on which they operate as well as the type of system (expert system, hypertext, multimedia) they represent.

In a May 1990 article in Information Center Magazine, Dr. Nancy S. Mueller discusses the tools available to assist in the search for the right software. She groups those tools into four basic categories; magazine reviews and indexes; special serial reports; software directories; and vendor ads, brochures and demo disks. Each provide valuable assistance in the paring down of the large number of software products available. IC managers should be aware of all these sources that are covered in this article in order to identify software that can assist in the Help Desk function as well as support their customers in their functional work. One particular caution that she adds in using these sources is to be sensitive to the date of the source. A list of those sources included in her article is at enclosure 8.

Vendors have also been contacted and a collection of their brochures has been gathered for review. The brochures have been provided under separate cover, however, a list of the products and vendors are provided at enclosure 9.

2.1.2.2 Hardware

The actual hardware products mentioned are only a representative sampling of what is available. What is being demonstrated by the selection of these particular products are the similarities and differences in the features of similar products. Using these features an IC manager can determine if a product can help the Help Desk to operate more effectively and efficiently. No determination as to which is "best" of these listed is made. Many factors beyond what is included in the short list of features go into making that decision.

Data on optical disk drives, scanners and fax boards, unique technologies that can support the Help Desk, is at enclosure 10. These technologies were chosen to be included in

this report because they are not in widespread use in the Army but do provide some promise of possible use by the Help Desk. The identification of more commcn hardware, such as the "best" hard drive, monitor, CPU, etc., was purposely not included because the "best" can only be determined by the organization requiring the service. Additionally, the "best" is a fast moving target which changes rapidly as technology advances. Therefore identifying the "best" of those more common type of hardware would be of little value.

An explanation of each of the three technologies is included along with a matrix or spreadsheet comparing the features of the sample products. Additionally, information on companies selling the various products is included. This does not constitute an endorsement of any of these products.

2.2 EVALUATION AND REPORT PHASE

2.2.1 Task 3.2

2.2.1.1 IC Interview Responses

Responses to the individual interviews are at enclosure 4.

2.2.1.2 IC Interview Response Analysis

2.2.1.2.1 Individual Information Center Analysis

Using the responses from each of the interviews, an analysis was conducted to determine: (1) the range or level of support provided by each IC; and (2) if problems in providing support existed due to lack of hardware or software. To do this analysis the IC responses were studied in relationship to the following three issues:

1. Does the IC provide service to end users in all five IMA disciplines?

2. Does the IC provide a full range of support in the disciplines that it does support?

3. Do problems in providing support exist due to lack of hardware or software?

The findings and conclusions for each IC are at enclosure 11.

2.2.1.2.2 Overall Information Center Analysis

The individual responses to the interviews were consolidated into one matrix to show the type of Help Desk support typically provided and to assist in an analysis of the overall range or level of support being provided by Information Centers. The consolidated matrix is at enclosure 12.

The overall analysis is based upon the same issues identified for the individual IC analysis but applied in general terms to the consolidated matrices. The following conclusions were drawn that Information Centers in general:

1. Do not provide service to end users in all five IMA disciplines.

2. Do provide a full range of support for the automation discipline.

3. Have no specific problems that exist due to a lack of hardware.

4. Need, and in most cases are developing or looking for, software to assist in the operation of the Help Desk.

The consolidated matrix and the notes included at the bottom of each of the interview checklists were used to arrive at these conclusions. The IC managers spoke freely of their needs and on-going plans. All spoke of the need for Help Desk software, however, each was in a different state in implementing the system they need. Many agreed to share the Help Desk systems that they had developed.

One of the first questions asked of the IC managers during the interview was "Does your IC service all five of the IMA disciplines?". As can be seen from the individual interviews the response was typically "No". The most common exception was within the visual information discipline in which most said they serviced automated presentation systems in assisting users to develop slides or presentations. However, that was typically the extent of the excursion into other disciplines. Many expressed a frustration with not performing the function of single point of contact for IMA services because they saw that as their mission under existing policy and guidance. Based upon the IC managers' comments, possibly the DOIM should be considered the IC under the single POC definition with the IC being the "automation" branch, handling only that discipline, with other branches within the DOIM handling the others. It appears that many DOIMs are organized in this manner today.

Many IC managers mentioned the need to establish a facility for sharing information in order to assist ICs in their job. Due to personnel cuts, some ICs had cut back on services to end users

and were not able to perform such services as the integration of state-of-the-art (SOTA) technology because they were kept busy attending to daily business. They were limited in their ability to plan and integrate technology into the workplace. Without a plan, the ICs were reacting to user requests rather than leading the organization. This was true in both hardware and software technologies. The IC managers felt that their inability to plan and integrate technology applied to supporting the end-user community as well as the IC Help Desk.

Site 2 performs the functions of an IC servicing 15 other ICs within its command. It does not service end users at all. This IC develops regulations, policies, standards and guidelines for software issues. This concept, although not new, provides for standardization, assists other ICs in their planning and integration of future technologies, and provides a facility to share information among many ICs. This type of facility can save ICs many hours researching problems, developing plans, policies and standards.

The IC manager at Site 1 offered some tips or lessons learned that may help other ICs. Some of those were:

Call Tracking - Every call is logged and tracked until it is closed out.

Help Desk Receptionist - The Help Desk receptionist maintains the call tracking database, greets customers and leaves technical work to the technicians.

Contractors - Contractors should be hired to repair equipment only.

Education - Formal training of IC employees is necessary. Have at least on "expert" on all supported software packages.

Demonstration Area - The IC should have a demonstration area with five to six PCs available for common use at all times.

Data Base Management Systems - The ICs need a standard DBMS in order to share data on problem resolution, product information, etc.

This desire to share information with others in similar circumstances points to the need for a facility to act as Site 2 does - an IC for ICs.

2.2.2 Task 3.3.3

2.2.2.1 Help Desk Support Provided

A matrix showing the Help Desk support functions and which technology identified at enclosure 10 supports those functions is at enclosure 13. It is important to remember that based upon the requirement definition all of the technologies could easily support the functions of a particular Help Desk.

2.2.2.2 Technology Evaluation Criteria

Criteria that can be used in the evaluation of the hardware and software technology is at enclosure 14. To help explain each of the criteria questions relating to each are provided. The information provided for each of the various software and hardware products permits an evaluation of each based on the developed criteria. No weighting factors in terms of relative importance of each criteria can be applied in this environment. As products are evaluated,
weighting factors must be assigned to each criteria to aid in the evaluation/selection process.

2.2.2.3 Technology Evaluation

Help Desk analysts need to obtain answers to questions quickly and accurately. In addition the answers must be consistent. To accomplish these goals a system must be implemented that can assist in the monitoring, diagnosing, logging and managing of problems. The ideal system will most likely consist of a combination of software and hardware that is easy to use and is complete in its assistance to the Help Desk analyst. Information to assist in evaluation of the applicable technologies is in the following two paragraphs. Included in the data provided in enclosures 7 and 10 is information that can assist in a cost-benefit analysis of those technologies. Because there are many products that can assist the Help Desk, it is not as important to focus on the products listed in these enclosures as it is to focus on the type of information being displayed. That information is necessary to gather in order to perform an assessment of the technology.

2.2.2.3.1 Software

The research found that many software applications exist to support the Help Desk functions. An overall software package such as a hypertext, multimedia and/or an expert system that can perform in the same logical sequence as an analyst is the optimum solution or implementation for a Help Desk. These systems address the problems of high turnover of Help Desk personnel, the large

volume of requests and inconsistent advice normally associated with the Help Desk function. However, purchasing and implementation of these systems can be costly in terms of money and development time.

Short of that there are many other software packages that can perform various portions of the Help Desk analyst's job. For example, off the shelf software exists that can perform the logging, reporting and managing of equipment maintenance problems as well as producing work orders, management reports/graphs and other historical data for relatively low costs. Other systems aid in the development of training packages to assist the Help Desk educate its users. Software packages are available to assist in assessing needs, developing documentation and performing cost comparisons. Some packages are available in modules that can be customized to satisfy the particular Help Desk needs. Also available are systems that allow the user to use pictures to find and manage information in a database. Each of these systems would aid the Help Desk analyst, from novice to expert, reduce problems associated with operating the Help Desk. Based upon the volume of software packages available an IC manager should be able to identify one that fits the needs of the particular Help Desk.

2.2.2.3.2 Hardware

Many types of hardware exist that can be used in the automation of the Help Desk function. Those that appear to have an immediate impact with low cost, both in dollars and effort, are those that facilitate the conversion of hardcopy information into an existing automated system. For example, the use of a scanner or fax board appear to have a high impact on supporting the Help Desk. The fax board can assist the Help Desk in the dissemination of documents such as work orders, requisitions and newsletters. The scanners provide an inexpensive way to include hardcopy text and art work in an automated system. Hardcopy text can be scanned into a system then transported through a local area network or to remote sites via the fax board.

The erasable optical disk will impact by providing a "near on-line" storage system that can maintain large volumes of data. Historical data, help or user assistance data or simply large amounts of data not needed for immediate retrieval can be stored on optical disk and made available in a short time. Having this data readily available will improve the quality of answers provided by the Help Desk analyst.

The technology that will have a large impact in the very near future is multimedia. Although multimedia technology pertains to a combination of software and hardware technologies, the hardware is of particular interest because of the amount and type of equipment - with subsequent cost - that is required to have a full-scale, top of the line, multimedia system. This system requires a desktop computer equipped with massive storage

devices, high speed image processing, high resolution video output and sound digitalization and high fidelity audio output. With recent break-throughs in microchip technology all of these are becoming more available and more reasonable in price. In December 1990, the Department of Defense adopted standards pertaining to multimedia and incorporated those into Military Standard 1379/D.

2.2.3 Task 3.3.4

2.2.3.1 Final Report

This final report presents the information required by contract number DAKF11-91-D-0004-0002.

2.2.3.2 Graphs and Charts

The matrices and checklists contained in the enclosures as mentioned in the report were sufficient to support conclusions or recommendations. Therefore no additional graphs and charts are required.

SECTION 3

FUTURE PLANS/RECOMMENDATIONS

3.1 Future Plans

Providing assistance to users of the Information Mission Area disciplines involves many issues. The specifics of the "who, what, when and where issues" is probably best addressed within a local setting such as a post or installation, however acceptable alternative methods or standards for addressing those issues should be established at a higher level in order to establish some uniformity in services and procedures for obtaining those services. Therefore, the following recommendations are submitted that would help in establishing those methods or standards.

3.2 Recommendations

3.2.1 IMA Integration

Based upon information gathered in the telephone interviews, there appears to be a wide divergence in the implementation of the ICs. This can be expected to a certain degree due to the type of "customer" that each serves. However, the degree of divergence to which each services the five disciplines of the IMA implies that the original concept of "one-stop shop" or "single point of contact for IMA services has not been implemented. There are probably many good reasons for this but probably the most constraining one is that the Army in general may not have accepted the IMA concept. Customers still go to the print plants, audio-visual/TASC offices, and communications centers to get service for related disciplines. The IC appears to be "the automation" place.

The question that arises, based upon this observation, is "Is ISC serious about consolidating the IMA disciplines and providing a true "one-stop shop" for its customers?". If so, then a concerted effort must be taken to consolidate/integrate all the IMA disciplines into the IC. This consolidation should fit well with the latest philosophy of combining like functions thereby assisting in the reduction of personnel requirements. AIRMICS published an Integrated IMA IC Guide in June 1989 which provided "DOIMs and IC managers with strategies to facilitate their efforts to provide integrated end-user support in the IC for the IMA disciplines." A point of interest would be to determine the level of IMA integration in the ICs throughout the Army as well as identifying the strategy used by those who were successful in integrating the IMA and the road blocks encountered.

3.2.2 Future Technologies

This leads to the questions of "Where are ICs going?" and "What role should the IC play in planning, both long and short range?" All too often personnel from the IC are doing well just to keep up with the daily work load. They usually do not have time to plan for the next day, even less for next week, and next year - or the next five years - is out of the question. A roadmap or long range plan that can be used as a template, much like a communications plan, should be established for each of the disciplines in order to provide standards and a coordinated growth path along which to move. This roadmap should address the how, what, where and when of the growth path. Research into what is forecast for the future must be done to lay out that path to avoid costly delays or diversions. For example, personnel in the records management discipline should be planning the integration of near-online storage devices such as the erasable optical disk. Much of this current research effort looks at the technology available to assist the Help Desk. A look at the future technologies must be made to help the IC establish its role in the planning aspects of information technology.

3.2.3 Software Evaluation

A large volume of software packages are on the market today being advertised as tools to help the Help Desk perform its mission. Many are "complete" packages which include applications for phone message logging, maintenance/repair work order generation/tracking, report generation, etc. Many are designed to handle only one to two aspects of the Help Desk mission. For example some assist in inventory management/tracking only. Others assist in logging phone messages. To assist the IC Help Desks identify those packages which are best suited for their needs a more indepth evaluation of these packages should be conducted. The packages should be evaluated based upon their applicability to Army IC functions, range of support provided, availability and compatibility. Identifying recommended packages would lead to establishment of standards. A more near-term benefit to this evaluation would be providing IC Help Desk with information to make an intelligent choice in the purchase of a software package.

3.2.4 Center of Excellence for Army Information Centers

The concept of Information Centers was originally developed by IBM over a decade ago. The Army began implementing ICs in the mid-to-late 1980s with the formation of the Information Mission Area. The initial Army implementation followed the same path as industry - support for end-user automation. However, the Army ICs were quickly given more difficult problems to address than their counterparts in industry.

First of all, the mission of the Army ICs is to support all five disciplines of the IMA. Industry ICs support automation with the possible exception of some support for automated visual information or graphics systems. Developing and maintaining expertise, regardless of the level, in the five disciplines requires effort on the part of the IC staff that industry ICs are not required to put forth.

Secondly, Army ICs support a multi-vendor environment whereas businesses within industry typically tend to be single vendor oriented. A single vendor solves many support problems for businesses that Army ICs face daily.

Although both the Army and industry ICs are faced with high turnover rates at the technician level, the Army's capability to replace departing civilian employees is burdened with the federal hiring procedures. From the military perspective, it is not unusual for one soldier to be reassigned and gone months before a replacement arrives. In addition, the variances in the level of training given to soldiers who hold the same military occupational specialty (MOS) means that a replacement may not be beneficial to the IC for weeks after arrival because of individual training requirements.

Although some sources are available for assistance to ICs, Army ICs have requirements, while not totally unique, that require a special focus. To provide that special focus it is recommended that the Army develop a Center of Excellence in Information Centers. It is recommended that the Center of Excellence focus on the following:

1. Providing guidance specific to the needs of Army Information Centers.

2. Providing practical solutions to assist the Army Information Centers in management of their functions.

3. Assisting in information sharing on Help Desk related functions among Army Information Centers.

4. Operating a test bed or prototype operation in which software and hardware would be tested for applicability within the Army Information Centers.

5. Developing standards which would not only make the exchange of data easier but also reduce personnel training requirements.

Because of the importance of its mission within an organization, the IC must continue to provide the best possible SOTA advice and assistance in all of its areas of responsibility. To provide the IC, and subsequently the customer, the type of support they require and deserve, developing a Center of Excellence for Army Information Centers is recommended.

ENCLOSURE 1

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ENCLOSURE 2

LITERATURE SEARCH

****

1 SOFTWARE SAME HELP ADJ DESK
RESULT 54

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DOCUMENT 1
TI TITLE: VMXworks - a voice-messaging/call processing platform. (product announcement).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Teleconnect.
VO VOLUME/PAGES: V9. P26(2).
DA DATE/YEAR: Jan, 1991.
SU SUBJECT: VMX DIAL (Computer apparatus) - Usage. VMXworks (Program development software) - Product introduction. Helpworks (Communications software) - Product introduction. 800 Secureworks (Communications software) - Product introduction. Insureworks (Communications software) - Product introduction. Product Introduction. Program Development Tools. Voice Communications. VMX Inc. - Product introduction. VMXworks overview. (chart).
AB ABSTRACT: VMXworks, from VMX, ia a hardware/software platform for applications development designed to allow value-added resellers (VARs) to create dynamic voice/data programs, including customer service, help desk, and medical patient monitoring applications. A VMX DIAL system provides connection to a PBX and a 3270 host. Central to VMXworks is Application Controlled Messaging (ACM), which creates and controls messages through the application without recourse to permanent mailboxes. VMX has written a series of software packages and templates, including Helpworks, a help desk application for MIS departments; 800 Secureworks, a telecom security system; and Insureworks, a 24-hour policy/claims information line for insurance companies. Teamworks, a third-party developer program, provides training, certification, support and marketing assistance to VARs developing VMXworks applications. Added to an installed DIAL system, the suggested end-user price for VMXworks is $13,500 plus applications. The listed applications are $3,500 and up.

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DOCUMENT 2
AU AUTHOR: Wallace, Bob.
TI TITLE: Porsche implements ANI, CallPath/400. (reduces by 20% the time needed to handle calls from dealers to central help desk) (Automatic Number Identification).
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P11(2).
DA DATE/YEAR: Dec 17, 1990.
SU SUBJECT: Porsche Cars North America Inc. - Communication systems. Callpath/400 (Communications software) - Usage. Communications Software. Customer Relations. Management of EDP. Communications Applications. Automatic Number Identification (Telecommunications).
AB ABSTRACT: Porsche's 270 US car dealerships are using ANI and a pre-released version of IBM's CallPath/400 PBX-to-host software to enhance a help desk application. According to sources at Porsche,

the system reduces by 20 percent the time needed to process the over 300 customer service calls received weekly. The company uses the help desk application to primarily track down incident reporting when dealers report network problems. Porsche uses the CallPath/400 with a Northern Telecom SL-1 private branch exchange. A source at Porsche notes that his company is coming out with new technologies and products as a means of streamlining products and improving the efficiency of its dealer support. The company's original help desk application had two people handling dealers calls on a single 800 number. By using ANI the company gets the customer profile to the technician as the call arrives.

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DOCUMENT 3
AU AUTHOR: Varney, Sarah E.
TI TITLE: Help-desk personnel get help from Lysis. (Lysis' Software Information System software) (product announcement).
JN JOURNAL: Digital Review.
VO VOLUME/PAGES: V7. P9(2).
DA DATE/YEAR: Dec 17, 1990.
SU SUBJECT: Lysis Corp. - Product introduction. Product Introduction. Data Bases. Support Services. Software Information System (Data base) - Product introduction.
AB ABSTRACT: Lysis Corp's Software Information System (SIS) is a data base designed to support non-expert help-desk personnel in VMS and microcomputer environments. Personnel can use SIS to assist callers having trouble with their computer equipment. The helpers lead callers though a sequence that narrows the problem until a solution is found. SIS operators use fields to record the caller's answers. Experts from the user company work at the phone desk for 90 days after the software is installed, constructing an answerbase for the software, which can then be operated by non-expert helpers. SIS in a single-user configuration for one product costs $3,000, but prices can rise as high as $50,000 for complex requirements.

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DOCUMENT 4
AU AUTHOR: Booker, Ellis.
TI TITLE: Waste Management uses hybrid IS structure to run garbage business. (Waste Management of North America Inc.) (includes related article on landfill management, specific technologies used).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Computerworld.
VO VOLUME/PAGES: V25. P53(2).
DA DATE/YEAR: Jan 14, 1991.
SU SUBJECT: Refuse and refuse disposal - Case studies. Electronic data processing departments - Management. Case Study. MIS. Management of EDP. Waste Management of North America Inc. - Data processing.
AB ABSTRACT: Waste Management of North America Inc, the nation's largest garbage collector and landfill operator, uses a hybrid 'centrally decentralized' information systems organization. The centralized operation at Waste Management's headquarters in Oak Brook, IL performs software development for both large systems and microcomputers and support functions such as data center

administration, telecommunications and a help desk. It also negotiates volume purchase agreements for the IS departments at other Waste Management business units and advises them about standards, future technologies and IS architectures. Regional operations include 550 field locations, all IBM shops. Waste Management is one of the largest users of IBM AS/400 minicomputers, which perform a wide variety of scheduling, customer billing and landfill management functions. The company uses computer-aided software engineering tools for application development and has 400 information systems employees.

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DOCUMENT 5
AU AUTHOR: Rayl, Eric.
TI TITLE: SupportMagic tops help-desk software; outdated interface designs undermine easy operation of other packages. (Software Review) (overview of four evaluations of help-desk software packages) (includes related articles on Analyst's Choice, testing methodology and Btrieve vs. Progress database engines) (evaluation)
IL ILLUSTRATIONS: Illustration. Table. Chart.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P63(4).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Software packages - Evaluation. Computer software industry - Products. Software packages. Evaluation. Support Services. BusinessWise Inc. - Products. Computer Associates International Inc. - Products. Magic Solutions Inc. - Products. Strategic Microsystem Corp. - Products. SupportWise 2.3 (Computer program). CA-Netman/MRM Professional 3.2 (Computer program). SupportMagic 1.5 (Computer program). Customer Support System 3.2 (Computer program). Analyst's scoreboard. (table). Specs. (table). How help-desk software works. (chart).
AB ABSTRACT: Four help-desk software packages designed to simplify the task of providing internal computer support are reviewed. Help-desk programs log support calls into a queue that includes subject, status and the name of the person responsible for resolving the problem. Computer Associates International Inc's CA-Netman/MRM Pro and Magic Solutions Inc's SupportMagic are specifically designed for internal support, while BusinessWise Inc's SupportWise and Strategic Microsystem Corp's Customer Support System 3.2 are external customer-service systems that can be implemented internally. The internal programs are more powerful and flexible and offer a modular design. SupportMagic is rated an Analyst's Choice because its interface is much more sophisticated and up to date than those of the other three products.

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DOCUMENT 6
AU AUTHOR: Rayl, Eric.
TI TITLE: BusinessWise Inc: SupportWise 2.3. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P63(2).

DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: BusinessWise Inc. - Products. Evaluation. Software Packages. Support Services. SupportWise 2.3 (Computer program). Vital signs. (table).
AB ABSTRACT: BusinessWise Inc's SupportWise 2.3 help-desk software is a program designed for external customer service that can also be deployed within an organization. It is powerful and versatile, but many of its features work best in external situations involving contracts, pay-per-call billing and purchase-order acceptance. SupportWise is available for DOS, Unix, VMS and BTOS operating platforms and uses Progress Software Corp's Progress DBMS, which users must purchase separately for $200 to $2,000. Its interface and documentation are Unix-oriented, but its menu trees can be customized for specific uses. The software has a powerful, built-in search facility that lets users associate keywords with particular records and perform searches on raw text. SupportWise sells for $2,500 for a single user and $9,000 for an eight-user LAN system.

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DOCUMENT 7
AU AUTHOR: Rayl, Eric.
TI TITLE: Computer Associates International Inc.: CA-Netman/MRM Professional 3.2. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P75(1).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Computer Associates International Inc. - Products. Evaluation. Software Packages. Support Services. CA-Netman/MRM Professional 3.2 (Computer program). Vital signs. (table).
AB ABSTRACT: Computer Associates International Inc's CA-Netman/MRM Professional 3.2 help-desk software is written in Progress and provides a common interface on microcomputer, mainframe and DEC VAX versions. Its documentation is excellent, but the user interface is outdated and awkward. The program provides minimal on-screen information about its data-entry fields; most commands are function-key driven. There is no context-sensitive help. CA-Netman/MRM Pro uses 'Action Requests' and 'Memo Files.' The Memo Files have been rendered obsolete by today's groupware and electronic mail package. A Training and Support Library module consists of Training Notes, Support Notes and Product Notes modules. CA-Netman/MRM Pro costs $4,995 for a single user and $7,495 for a 15-user LAN version.

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DOCUMENT 8
AU AUTHOR: Rayl, Eric.
TI TITLE: Magic Solutions Inc.: SupportMagic 1.5. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P76(2).

DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Magic Solutions Inc. - Products. Evaluation. Software Packages. Support Services. Top Rating. SupportMagic 1.5 (Computer program). Vital signs. (table).
AB ABSTRACT: Magic Solutions Inc's SupportMagic 1.5 help-desk software is designed specifically for internal computer support and is easy to install and use. The user-friendly interface has pull-down menus, pop-up dialog boxes and context-sensitive help. Data access is very fast, and the program uses Novell's Btrieve DBMS. SupportMagic has built-in security features; individual users can be assigned specific rights down to the field level. Magic Solutions offers an extra-cost add-in, MagicTree, that provides expert-system technical assistance. SupportMagic 1.5 costs $3,995 for a single-user version and $7,995 for an eight-user network version.

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DOCUMENT 9
AU AUTHOR: Rayl, Eric.
TI TITLE: Strategic Microsystems Corp.: Customer Support System 3.2. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P76(1).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Strategic Microsystem Corp. - Product introduction. Evaluation. Software Packages. Support Services. Customer Support System 3.2 (Computer program). Vital signs. (table).
AB ABSTRACT: Strategic Microsystems Corp's Customer Support System 3.2 help-desk software uses the fast Novell Btrieve database engine but suffers from a dated user interface. The data-entry screens are uncluttered, but lack context-sensitive help or pull-down menus. Users planning to configure Customer Support System for internal support need to be cautious when setting up the program because it is designed as an external user-support package. Its 'Client,' 'Company,' 'Contact' and 'Industry' terms must be mapped to those appropriate to an internal help desk. Codes such as 'Product' and 'Priority' must be redefined, and there is no provision for creating new codes during a session of logging calls. Customer Support System costs $995 for a single user and $1,995 for unlimited users.

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DOCUMENT 10
AU AUTHOR: Schroeder, Erica.
TI TITLE: Help-desk buyers need flexibility, better reporting. (survey of users of help-desk software packages).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P63(3).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Software packages - Usage. Software packages. User Survey. Software Selection. BusinessWise Inc. - Products. Computer Associates International Inc. - Products. Magic Solutions Inc. - Products. Strategic Microsystem Corp. - Products. SupportWise 2.3 (Computer program) - Usage. CA-Netman/MRM Professional 3.2 (Computer program) - Usage. SupportMagic 1.5

(Computer program) - Usage. Customer Support System 3.2 (Computer program) - Usage.
AB ABSTRACT: Buyers of four help-desk software packages say that flexible reporting is a key factor in purchasing decisions. Users like packages that they can configure to suit their needs but complain that reporting is not flexible enough in most programs. Magic Solutions Inc's SupportMagic earns praise for its internal-use orientation and fast database. One user is especially pleased with its add-in MagicTree expert-system module. Buyers of BusinessWise Inc's SupportWise are pleased with the program's knowledge base and the variety of ways in which users can search the database. Strategic Microsystems Corp's Customer Support System is praised for its efficient data retrieval and ease of learning. A Customer Support System user notes that the program's reports are good but would like to see more flexibility. Computer Associates International Inc's CA-Netman/MRM Pro is oriented toward inventory control; users like it as an alternative to mainframe-based packages.

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DOCUMENT 11
AU AUTHOR: Currid, Cheryl.
TI TITLE: Here comes the computer training debate, again. (corporate computer training) (Risky Business) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P74(1).
DA DATE/YEAR: March 11, 1991.
SU SUBJECT: Employees, Training of - Economic aspects. Computer industry - Products. Computer software - Usage. Training of Employees. User Training. Computer industry. Software Packages.
AB ABSTRACT: The recession has prompted many corporations to consider curtailing computer training programs, but that decision would be a mistake for most firms. Corporate users tend to have an inflated impression of their level of computer skills and actually have a lot to learn from training courses - even those classes concerned with the basic operation of common software programs. Training can help to tap the full value of expensive computer equipment and can make employees faster and more efficient by teaching them new skills. Many help-desk calls are attributable to users unfamiliar with their software programs, demonstrating the need for an accurate assessment of employee computing skill levels.

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DOCUMENT 12
AU AUTHOR: Hwang, Diana.
TI TITLE: Brightwork introduces network management tools: debuts LAN Support Center, LAN Automatic Inventory. (Brightwork Development Inc., local area network) (product announcement).
JN JOURNAL: Computer Reseller News.
VO VOLUME/PAGES: P42(1).
DA DATE/YEAR: March 4, 1991.
SU SUBJECT: LAN Support Center (Network management software) - Product introduction LAN Automatic Inventory (Utility program) - Product introduction. NetWare (Network operating system) - Computer programs. Product Introduction. Network Management Software. Brightwork Development Inc. - Product introduction.

AB ABSTRACT: Brightwork Development has introduced two network-management tools meant to improve network efficiency and control. LAN Support Center ($595 per help desk node) is a fully relational database that lets managers of networks track the LAN environment. The program tracks and maintains data on each user's station and works in conjunction with the developer's NETremote+ application. LAN Automatic Inventory ($695 per file server) for Netware networks was also unveiled. The program builds and maintains a database for hardware and software components on each LAN.

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DOCUMENT 13
AU AUTHOR: Taft, Darryl K.
TI TITLE: TIC unsnarls Navy systems traffic, saves money. (Votek Systems Ltd.'s The Intelligent Console automated information center equipment).
JN JOURNAL: Government Computer News.
VO VOLUME/PAGES: V10. P31(2).
DA DATE/YEAR: March 18, 1991.
SU SUBJECT: United States. Navy - Automation. United States. Navy. Case Study. Information Resources Management. Performance Improvement. Information Centers. Automation. Votek Systems Ltd. - Products. The Intelligent Console (Data center management software) - Usage. Allen, Greg - Management.
AB ABSTRACT: The United States Naval Supply Center in San Diego reports impressive performance improvements as well as cost savings since it implemented Votek Systems Ltd's The Intelligent Console (TIC) to automate its data center management functions. Greg Allen, computer operations manager at the center, claims the system has increased system and terminal availability and has also reduced help desk inquiries and console message traffic. Specifically, Allen claims TIC has reduced console traffic from 30,000 messages a day to just 400, has reduced the average time suspended terminals are hung from 46 minutes to just four minutes, and has saved the center $75,000 in labor costs in under a year. TIC is an outboard system that runs on a microcomputer, monitoring all major software and hardware components of the center's mainframe computers.

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DOCUMENT 14
AU AUTHOR: Harding, Elizabeth U.
TI TITLE: Help desk interest rising. (MIS departments provide support services to end users; software solutions being developed) (Technology).
JN JOURNAL: Software Magazine.
VO VOLUME/PAGES: V11. P28(1).
DA DATE/YEAR: April, 1991.
SU SUBJECT: Trends. Management of EDP. Support Services. MIS. User Relations. End Users. Software Packages.
AB ABSTRACT: MIS departments investigate help desk software to offer improved support services to their customers. A help desk is typically staffed with a technician who answers customer inquiries and solves the problems of a corporation's computer users. The expertise of help desk staff varies, and some help desk employees

are required to research support publications on the spot while others have access to complex diagnostic tools. Corporate interest in help desks is growing because end user computing has increased dramatically and service fees for help desk facilities are causing users to demand higher levels of service. Data centers have traditionally included help desk functions and are now becoming formalized, but the role of the help desk is still evolving. Several companies such as Candle Corp and AICorp specialize in performance tools and help desk software solutions.

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DOCUMENT 15
AU AUTHOR: Desmond, Paul.
TI TITLE: McKesson expert net tool just keeps getting smarter. (McKesson Corp.'s McKnowledge network expert system).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V8. P1(2).
DA DATE/YEAR: May 20, 1991.
SU SUBJECT: McKesson Corp. - Product development. Product Development. Expert Systems. Data Base Management Systems. Network Management. Artificial Intelligence. Rule-Based Systems. Local Area Networks. NetView (Computer network software) - Usage. DB-2 (Data base management system) - Usage. McKnowledge captures experts' knowledge. (chart).
AB ABSTRACT: McKesson Corp's McKnowledge expert system assists in solving network management problems and continually becomes more powerful by automatically adding experiences. The system operates in conjunction with IBM's NetView computer network software and Information Management problem management data base to provide users and help-desk operators with a source of solutions for problems learned by the system. When a problem occurs on the network, McKnowledge assigns a code to that problem and tries to match that code with a similar one that represents a solution. The expert system is unique in that, while it continues to learn new experiences and gain capabilities, its rule set remains the same. The experience base resides on a mainframe running under IBM's DB2 data base management system.

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DOCUMENT 16
AU AUTHOR: Ballou, Melinda-Carol.
TI TITLE: Target job scheduler couples multiple tasks; expert system beefs up help desk software. (Target Systems Corp.'s Target Batch and Target Hotline software packages) (product announcement).
JN JOURNAL: Digital Review.
VO VOLUME/PAGES: V8. P4(1).
DA DATE/YEAR: May 27, 1991.
SU SUBJECT: Target Systems Corp. - Product introduction. Product Introduction. Expert Systems. Scheduling Applications. Problem Solving. Support Services. Tree Structures. Interoperability. Target Batch 3.12 (Computer program) - Product introduction. Target Hotline (Search software) - Product introduction.
AB ABSTRACT: Target Systems Corp introduces its $4,995 to $19,995 Target Batch job searching and Target Hotline help-desk software

packages. Target Batch features job stream capabilities that lets users connect multiple jobs into logical series. The new feature lets users modify and shuffle job streams either as nightly procedures or as complex, single-step update procedures. This precludes the need to manually change each job in the stream. Target Hotline is an expert system that includes multiple question-and-answer branches. Target Hotline can jump to a specific branch of information. The application has an interactive display that shows the user the expert tree. This enables the user to access the whole knowledge base of information. Users can develop their own problem-logging screens using Target Hotline. Target Systems designed Target Batch and Target Hotline to be used together.

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DOCUMENT 17
AU AUTHOR: Liebing, Edward.
TI TITLE: Interpoint answers calls with help-desk solution: queuing feature aids service and support system. (Servicepoint) (Software Review) (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: LAN Times.
VO VOLUME/PAGES: V8. P101(3).
DA DATE/YEAR: May 6, 1991.
SU SUBJECT: Evaluation. Software Packages. Support Services. Interpoint Software Inc. - Products. Servicepoint (Computer program). LAN Times rating. (table). Product summary. (table).
AB ABSTRACT: Servicepoint is help-desk software from Interpoint Software Inc that is targeted at the higher-end market where help-desks are manned by a dedicated administrator; therefore, it does not offer the reference database of problems that is standard with most such packages. It does have a wealth of features, including call queuing and prioritizing. Installation is straightforward and ease of use is good. Documentation and support are satisfactory. Error handling is satisfactory. Servicepoint is rated good for network performance, manageability, and security. The basic system is priced at $1,295; additional modules available for $195 each include Order Entry, Service Contracts, Service Call Dispatch, and Return Material Authorization (RMA) database. With all the optional modules, Servicepoint is priced at $1,995 per server, making this an excellent value.

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DOCUMENT 18
AU AUTHOR: Kleinman, Lori.
TI TITLE: Service options on the rise. (service and support provided by minicomputer vendors for customers using their products as file servers) (buyers guide).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: Computerworld.
VO VOLUME/PAGES: V25. P68(5).
DA DATE/YEAR: June 10, 1991.
SU SUBJECT: Minicomputers - Maintenance and repair. Computer network file servers - Maintenance and repair. Minicomputers. Support Services. Hardware Vendors. File Servers. Maintenance.

Directories. Server-configured minicomputers. (table).
AB ABSTRACT: A guide to service options offered by vendors of server-configured minicomputers is presented. IBM introduced value-added services in May 1991 through its newly-organized Integrated Services Solutions Corp (ISSC) subsidiary. It also offers enhanced services through its Applications Software Division Professional Services Group and Education/Training Group. The company has not yet expanded its help-desk support operation for microcomputers to minicomputers. DEC supports distributed systems with its full VAX and MicroVAX service portfolio, offering full support on the primary server system and 'economy' support on connected machines. HP has a multi-tiered support structure for the HP 3000 product line. Customer scan choose the level of support they need, and HP may expand its systems integration support to minicomputers soon. NCR Corp uses 'centers of expertise' specializing in systems integration, software engineering, account support, logistics and other services. Unisys Corp and Prime Computer Inc have both reorganized and now separate their value-added services from traditional remedial maintenance business units.

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DOCUMENT 19
AU AUTHOR: Pastore, Richard.
TI TITLE: Businessland pitches PC help. (Businessland Inc to offer microcomputer support services).
IL ILLUSTRATIONS: Illustration. Graph.
JN JOURNAL: Computerworld.
VO VOLUME/PAGES: V24. P4(1).
DA DATE/YEAR: June 4, 1990.
SU SUBJECT: Microcomputers - services. Microcomputers. Support Services. Market Entry. Multivendor Systems. User Needs. Businessland Inc. - services. Support staff.
AB ABSTRACT: Computer retailing chain Businessland Inc is moving into the microcomputer support services with 'Solution Line Plus,' a new, consolidated support line for multivendor systems. Solution Line Plus combines its previously separate Help lines for software, hardware, and LAN questions and provides telephone technical support for a total of 160 products Businessland sells. Fees for calling Solution Line Plus range from $30 to $38 per call; on-site service technicians dispatched by the Help desk charge $180 to $228 per hour. Some users with in-house support systems find these charges exorbitant, noting that end users tend to overuse Help-desk lines. Early Solution Line Plus customers include the sales department at New York Life Insurance Co, which wishes to focus on its primary business rather than on MIS.

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DOCUMENT 20
AU AUTHOR: Faletra, Robert.
TI TITLE: Businessland offers 'help.' (help desk to increase support services).
JN JOURNAL: Computer Reseller News.
VO VOLUME/PAGES: P3(1).
DA DATE/YEAR: May 28, 1990.

SU SUBJECT: Businessland Inc. - management. Marketing Strategy. Support Services. Corporations. Customer Relations.
AB ABSTRACT: Businessland introduces a new help desk program designed to bolster relations with corporate clients. The support service has been beta tested at a number of corporate locations during the past several weeks, including McDonald's and New York Life. The help desk utilizes a telephone-based system which enables customers to push different buttons to receive information on software problems. Corporations can arrange for calls at $50 per call or purchase a block of 100 solution calls for $1,895. The response to the testing of the help desk was 90 to 95 percent positive. Businessland will now be competing with its largest supplier, IBM, which offers a similar service.

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DOCUMENT 21
AU AUTHOR: Kilhoffer, Anthony R. Wisely, Charles L.
TI TITLE: HELDA: the Help-Desk assistant. (expert system for software support).
JN JOURNAL: AI Expert.
VO VOLUME/PAGES: V5. P57(3).
DA DATE/YEAR: Feb, 1990.
SU SUBJECT: Expert Systems. Support Services. Software Validation. User Assistance. User Needs. Knowledge-Based Systems. Mainframe Computers.
AB ABSTRACT: HELDA, an expert system developed by Cincom Systems Inc to provide user support for complex software, is described. Traditional keyword searching is an inadequate means of describing user problems and locating assistance because the selection of keywords is arbitrary and requires searching skill. HELDA has 3,500 rules arranged in 32 knowledge bases and two expert systems, one of which automates problem description with a series of questions while the other automates the search process. It supports problem records, problem resolutions, and diagnostic methods for determining resolutions. The developers of HELDA adhered rigidly to a set of system requirements, including simplicity and independence of the user language. HELDA is deployed on an IBM 3084 mainframe running the MVS/XA time-sharing operating system and has been highly successful in the field.

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DOCUMENT 22
AU AUTHOR: Depompa, Barbara.
TI TITLE: IBM broadens micro service offerings.
JN JOURNAL: MIS Week.
VO VOLUME/PAGES: V10. P4(1).
DA DATE/YEAR: Dec 18, 1989.
SU SUBJECT: Support Services. End Users. Marketing Strategy. International Business Machines Corp. - marketing.
AB ABSTRACT: IBM plans to support microcomputer software and hardware from Apple Computer and PC-compatible vendors beginning in Jan 1990. Under the program, an IBM "help desk" will provide repair advice via telephone for as little as $16 per workstation per month for 24-hour service IBM will also offer large corporate data centers three levels of support. These are electronic access to IBM's defect and

usage databases, which is free of charge; remote diagnostics capabilities, priced from $583 per month; and custom service featuring a full-time operational support specialist at the customer's site, priced from $835 per month.

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DOCUMENT 23
AU AUTHOR: Morris, Larry.
TI TITLE: Brightwork Development's network-enhancement products. (Product Focus).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Lan Times.
VO VOLUME/PAGES: V6. P54(2).
DA DATE/YEAR: Dec, 1989.
SU SUBJECT: Brightwork Development Inc. - manufactures. Local Area Networks. Network Management Software. Utility Programs. NetWare ACS (Computer network software) - product enhancement. QueueIt! (Utility program) - product introduction. NETremote Plus 3.0 (Computer network software) - product introduction LAN Support Center (Network management software) - product introduction.
AB ABSTRACT: Brightwork Development Inc defines itself as a network enhancement company that strives to develop software that adds mainframe-type features to Novell Inc's NetWare. Their software products fall into three main categories: network management software and LAN support and printing utility programs. They make QueueIT!, a $295 utility that extends NetWare 2.1 or above systems with 12- to 25KB of memory, providing such printing options as pop-up menus for on-the-fly print option changes. NETremote Plus is a LAN support product that allows a second local or remote workstation to share screen and keyboard, as well as accessing modems, fax boards, plotters and CD-ROM. Single-server licenses run $350 or $695 for a four-server version. LAN Support Center is a network management product that provides a comprehensive help desk feature to support LAN users. It costs $595 per support person.

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DOCUMENT 24
AU AUTHOR: Desmond, Paul.
TI TITLE: Peregrine net control tool gets direct link to NetView. (Peregrine Systems Inc.) (product announcement).
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P6(2).
DA DATE/YEAR: Jan 15, 1990.
SU SUBJECT: Product Introduction. Network Management Software. Interface. NetView (Computer network software) - aids and devices. PNMS3/NetView Interface (Computer program) - product introduction. Peregrine Systems Inc. - product introduction.
AB ABSTRACT: Peregrine Systems Inc introduces the PNMS3/NetView Interface, a host-based software for SNA that allows users to automatically open trouble tickets for NetView-generated alerts and track the problems through to resolution. The interface facilitates response to network problems before they affect end users. By reducing the manual data entry from IBM's NetView net management system to Peregrine's PNMS3 problem management system, the accuracy and productivity of help desk personnel increases. The

$62,000. After Mar 31, 1990, the price will range from $18,000 to $93,000.

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DOCUMENT 25
AU AUTHOR: Faletra, Robert.
TI TITLE: Service struggle; 'the next great war.' (microcomputer service and support market).
JN JOURNAL: Computer Reseller News.
VO VOLUME/PAGES: P2(2).
DA DATE/YEAR: Jan 29, 1990.
SU SUBJECT: Support Services. Market Share. Computer Retailing. Microcomputers. Vendors. Third-Party Maintenance. Competition.
AB ABSTRACT: Competition is heavy between computer resellers and vendors for a share of the microcomputer service and support market. It is easy to understand why retailers, manufacturers and third-party service providers are competing enthusiastically for the service dollar. Market researchers placed the size of the market at $2.4 billion in 1988 and expect it to grow to $2.8 billion in 1993. Margins of 35 to 50 percent make it even more enticing. Industry observers state that the best part of the service market for resellers to deal in is software support, systems integration and other professional services. Research indicates that this arena will sustain higher margins for a longer period. IBM has already announced plans to offer desktop-support services directly to users via its toll-free Help Desk service.

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DOCUMENT 26
AU AUTHOR: Eskow, Dennis.
TI TITLE: Firms unite to give help desks the help they need.
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P1(2).
DA DATE/YEAR: Feb 19, 1990.
SU SUBJECT: Expert systems (Computer science) - usage. Hypertext software - product development. Local area networks (Computer networks) - computer programs. Expert Systems. Consortia. Applications Programming. Support Services. Local Area Networks. Customer Relations. Help Desk Expert Automation Tool (Computer program) - product development Help Desk Institute - product development. Expert systems to get PC users through the hot spots.
AB ABSTRACT: The Help Desk Institute, a consortium of 28 major corporations, is developing the Help Desk Automation Tool (HEAT), a hypertext-driven, local area network-based help-desk expert system. HEAT is intended to assist help-desk personnel by speeding up their response time and increasing their expertise in running the help desk. Help Desk Institute programmers are writing the application with C language and Nantucket Corp's Clipper development environment. Eventually, an independent firm will be formed that will own and market the application.

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DOCUMENT 27
AU AUTHOR: Rymer, J.
TI TITLE: It's not AI, it's CASE. (Aion Corp.'s rules-based computer-aided software engineering products).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Patricia Seybold's Office Computing Report.
VO VOLUME/PAGES: V12. P21(2).
DA DATE/YEAR: Nov, 1989.
SU SUBJECT: Rule-Based Systems. System Development. Program Development Techniques. Program Development Tools. Custom Software. New Technique. Computer-Aided Software Engineering. System Design. Aion Corp. - product enhancement. The Aion product family.
AB ABSTRACT: Aion Corp's rules-based software development products are being enhanced with an application development methodology and application templates intended to hasten inference-based applications development and maintenance. Departments and lines of business now need tools and methods that will allow them to develop and maintain their own applications; Aion's methodology and Application Shell templates provide tools for encoding business rules into applications using the company's inference engine and for modifying rules to reflect changing conditions and requirements. A user and developer work together to define the rules in the application to provide guidance on design and development decisions; the methodology will be available in the 1st qtr of 1990. The Application Shells will be available starting in the 3rd qtr of 1990; the first two are for help-desk applications and business decision making.

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DOCUMENT 28
AU AUTHOR: Hogan, Mike.
TI TITLE: Service and support hit new heights. (vendors increase support services as products grow complex and sales decline).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: PC World.
VO VOLUME/PAGES: V8. P64(1).
DA DATE/YEAR: April, 1990.
SU SUBJECT: Software Publishers. Hardware Vendors. Support Services. Customer Relations. Computer Industry.
AB ABSTRACT: Hardware and software vendors are strengthening their support policies as products grow more complex and as slow sales result in a need to add value to products. IBM offers a round-the-clock 'help desk' to large customers, supporting both its own and other vendors' software and hardware. Ashton-Tate now offers customers a lifetime of toll-call support, up from 90 days. The company also offers a premium 'Assist' service which provides 20 toll-free calls, priority telephone access and access to the firm's electronic bulletin board. Assist originally sold for $50 a year, but now costs $150 as the company has noted that many users are willing to pay for support. Aldus Corp, following industry standards, has upgraded its free support policy to 90 days. It also offers two levels of extended service plans.

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DOCUMENT 29
AU AUTHOR: Desmond, Paul.
TI TITLE: Vendor/user teams fill product gaps.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P1(2).
DA DATE/YEAR: March 26, 1990.
SU SUBJECT: Partnership. Vendors. User Needs. Product Development. Cooperative Agreement.
AB ABSTRACT: The practice of codevelopment is starting to take root among vendors and users. Codevelopment means both parties team up to develop products that a user needs, but which are not commercially available. Among the codevelopment partnerships that have been established are the United Services Automobile Association's and Citibank N.A.'s work with IBM on its ImagePlus imaging software, and IBM and McKesson Corp's joint efforts on an automated help desk problem management system. With codevelopment partnerships, users get what they need at a lower cost in dollars and human resources. Vendors acquire significant user input that ensures that the product being developed addresses real market needs.

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DOCUMENT 30
AU AUTHOR: Marsan, Carolyn Duffy.
TI TITLE: EDS awarded contract to manage SBA DP center. (Electronic Data Systems wins $45 million Small Business Administration data processing contract).
JN JOURNAL: Federal Computer Week.
VO VOLUME/PAGES: V4. P17(1).
DA DATE/YEAR: March 19, 1990.
SU SUBJECT: Government Contracts. Service Bureaus. Data Processing. Government Agency. Specifications. Cost Reduction. United States. Small Business Administration. United States. Small Business Administration - contracts. Electronic Data Systems Corp. - contracts.
AB ABSTRACT: Electronic Data Systems (EDS) Corp has won a seven-year, $45 million contract to handle the Small Business Administrations (SBA)'s routine data processing at an EDS facility in Fairfax, VA. The Office of Management and Budget (OMB) recommended such a move as a way for the SBA to save money and improve operations efficiency. No SBA employees are expected to lose their job because of the contract. Some 1,700 SBA terminals and 800 microcomputers distributed among the SBA's headquarters and 108 field offices will be connected to a new Unisys mainframe at the EDS facility by way of an FTS-2000 network provided by US Sprint. The contract also requires EDS to provide network support, software and a help desk.

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DOCUMENT 31
AU AUTHOR: Brown, Jim.
TI TITLE: Group provides forum for help desks that need help; Fortune 500 firms turn to institute for instruction. (Help Desk Institute) (company profile).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: Network World.

VO VOLUME/PAGES: V7. P17(2).
DA DATE/YEAR: April 30, 1990.
SU SUBJECT: Help Desk Institute - services. Computer Education. Network Management. Company Profile. Problem Solving. User Relations. In-Service Training. Inside the Help Desk Institute.
AB ABSTRACT: The Help Desk Institute is a Dallas-based consortia of companies formed to enable corporate help-desk managers to set up efficient operations. The institute, formed in Jan 1989, offers courses and conferences led by management consultants, aimed at building or improving help-desk functions. Services are offered to members or nonmember companies, with members receiving discounts on courses and conference fees, in addition to a free bimonthly publication. More than 900 companies have joined the Help Desk Institute, including Marriott Corp and Xerox Corp. The institute is also designing IBM Personal Computer HelpDesk Expert Automation Tool Software to prompt help-desk personnel to ask specific questions to end users, so that their problems will be more easily solved.

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DOCUMENT 32
AU AUTHOR: Finn, Tony.
TI TITLE: Resourcing the DP Samaritans. (help desk facilities).
JN JOURNAL: DEC User.
VO VOLUME/PAGES: P43(2).
DA DATE/YEAR: April, 1990.
SU SUBJECT: Service Bureaus. User Assistance. Customer Relations. Office Automation. Telecommunications. How-To Information.
AB ABSTRACT: Help desk facilities can vary depending on the sophistication of the telephone system used. Customers may judge the effectiveness of the help desk by the attitude of the person receiving the calls, and by speed of performance and problem solving. Many factors need to be considered when setting up a system: select an easy to remember number for the help desk, use cordless handsets to give operators some mobility, try to get help desk phones that have labor saving features (such as last number redial and battery back-up), and track details of help desk calls (call volume, duration of calls, time to answer calls) for compilation of help desk performance statistics. Implementation of a help desk should not be attempted until all phases are assembled: complete staff, fully tested and installed software, operator training, and business procedure finalization.

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DOCUMENT 33
AU AUTHOR: Eckerson, Wayne.
TI TITLE: Users unite to design own help desk tool. (Helpdesk Expert Automation Tool).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P1(2).
DA DATE/YEAR: July 30, 1990.
SU SUBJECT: Consortia. Support Services. Expert Systems. Software Packages. Product Development. MIS. Bendata Management Systems Inc. - product development. (A partial list of the companies that helped design HEAT).

AB ABSTRACT: A consortium of 20 US and Canadian companies helped design the Helpdesk Expert Automation Tool (HEAT). HEAT was developed by Bendata Management Systems Inc of Colorado Springs, CO, a software development company that organized the consortium. Commercial release is slated for fall 1990. The program is an expert system-based tool for automating help desk operations. It runs on DOS-based 80386 microcomputers on any Network Basic I/O System-compatible local-area network (LAN). The expert systems takes help desk personnel through a series of questions they can ask callers to pinpoint the exact cause of a problem and suggests solutions. HEAT also supports a relational data base that provides quick access to information about callers, their system configurations and internal resources needed to solve problems. The program costs $7,500 for the first workstation, $4,500 for the second to fourth workstation on which it is loaded, $4,000 for the fifth to ninth workstations, and $3,500 for additional workstations.

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DOCUMENT 34
AU AUTHOR: Clegg, Bruce.
TI TITLE: Infotrack manages complete inventory: Trident product is valuable for problem solving. (Software Review) (evaluation).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: LAN Times.
VO VOLUME/PAGES: V7. P167(2).
DA DATE/YEAR: August, 1990.
SU SUBJECT: Evaluation. Software Packages. Inventory Control. Support Services. Trident Software - products. Infotrak (Project management software).
AB ABSTRACT: Infotrak, from Trident Software, is an inventory control program designed to keep track of the location of a firm's hardware and software, and also provides a problem-tracking feature that allows help desk or technical support personnel to chart the status of service calls and build a file of solutions to common problems. For this feature to be truly useful, however, the more expensive local area network (LAN) version of the package must be purchased, to allow more than one user to access the database at the same time. Infotrak is well-constructed and easy to use, with a user-friendly interface that features instructions and options in easily read menus. Documentation is well-written. Surprisingly, because of the attention to detail elsewhere, some of the page numbers in the index are wrong, but they are off by a single page, causing only a minor inconvenience. The basic Infotrak package is priced at $995. The $2,495 LAN version is licensed for an unlimited number of users. Prices include support and upgrades for six months.

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DOCUMENT 35
AU AUTHOR: Ferranti, Marc.
TI TITLE: Shrink-wrapped expert systems to help customer-support staffs. (Software Artistry Inc.'s Automated Helpdesk and Automated Labor Scheduler educational software) (product announcement).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P39(2).
DA DATE/YEAR: Sept 3, 1990.

SU SUBJECT: Product Introduction. Hypermedia. Expert Systems. On-Line Help Files. Educational software. Expert systems (Computer science) - computer programs. Educational software - product introduction. Software Artistry Inc. - product introduction. Automated Helpdesk (Educational software) - product introduction. Automated Labor Scheduler (Educational software) - product introduction.

AB ABSTRACT: Software Artistry Inc offers three help-desk programs and a labor scheduler which are hypermedia-based expert-system applications. The programs are to be used by managers in fast-food and retail stores and additional source code is available for customizing the software. The Automated Helpdesk series is for support staffs that help IBM midrange system users. Different versions of Automated Helpdesk are available for the MS-DOS, 4680, 4684 and OS/400 operating systems, and all the versions use the same graphical user interface. Information is called up by using the mouse to click on icons. The Automated Labor Scheduler is also hypermedia-based and mouse-driven, however, graphical images are not supported. The Automated Labor Scheduler runs in all the environments supported by the Automated Helpdesk, except for the 4684 operating system. Runtime licenses cost $1,000 for microcomputers and $2,000 for minicomputers.

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DOCUMENT 36

AU AUTHOR: Kuches, David.

TI TITLE: Help desk systems emphasize prevention. (problem-logging software and call-routing systems).

JN JOURNAL: Computerworld.

VO VOLUME/PAGES: V24. P68(1).

DA DATE/YEAR: August 27, 1990.

SU SUBJECT: Automation - computer programs. Telephone management software - usage. Computer errors - prevention. Automation. Diagnostics. Network Management. Problem Solving. Telephone management software. Error Logging. Error Handling.

AB ABSTRACT: Problem-logging software and telephone management systems are becoming popular forms of computer automation. The latest versions of problem-logging software provide help desk alerts, simple problem solving capabilities and training for new help desk staff via expert systems. Problem-logging is accomplished with built-in interfaces to network management software. When problems are detected they are automatically recorded in the help desk's central repository. Problem management software costs between $30,000 and $100,000 for mainframes, around $5,000 for midrange computers, and between $1,500 and $7,500 for PC local-area networks (LANS). Telephone support systems have an improved reporting mechanism for routing and distributing calls. A system featuring automated sequencing sells for $5,000 while a system that captures data and distributes calls can cost up to $100,000.

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DOCUMENT 37

AU AUTHOR: Ferranti, Marc.

TI TITLE: Software assists [illegible]tomation of help desks. (Aion Corp. announces Path Builder expert system shell; Samford Sorkin, others

offer troubleshooting software) (product announcement).
IL ILLUSTRATIONS: Illustration. Graph.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P33(2).
DA DATE/YEAR: Oct 8, 1990.
SU SUBJECT: Expert systems (Computer science) - computer programs. Software packages - product introduction. Expert Systems. Troubleshooting. Software packages. Aion Corp. - product introduction. Advantage KBS Inc. - product introduction. Path Builder (Computer program) - product introduction. Help Desk Assistant (Computer program) - product introduction. Help!Desk shows where problems lie. (graph).
AB ABSTRACT: Several new software programs that use expert-systems technology to assist corporate help desks in troubleshooting end-users' microcomputers are available. Aion Corp has announced Path Builder, a $995 expert-system shell that lets nonprogrammers build diagnostic expert systems for product troubleshooting. Path Builder presents the developer with three types of on-screen forms: situation editors for typing in typical problems, question editors for typing in the help-desk staffer's questions, and a branch editor that prompts the staffer to link questions to a final resolution. Advantage KBS' OS/2-based Help Desk Assistant is a powerful rule-based system with a knowledge base pertaining to IBM hardware and an interface to IBM mainframe support products. It costs $35,000 for the server software and $1,000 per node. Other support-automation programs include Sanford N. Sorkin Associates' $495 HelpDesk.

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DOCUMENT 38
AU AUTHOR: Currid, Cheryl.
TI TITLE: A friendly debate on the art of PC technical support. (Risky Business) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P159(1).
DA DATE/YEAR: Oct 8, 1990.
SU SUBJECT: Support Services. Microcomputers. Management of EDP. Problem Solving. Decision Making. Outsourcing. In-House. Microcomputers - maintenance and repair. Electronic data processing departments - management.
AB ABSTRACT: Reorganizing information systems tends to be a better solution to corporate technical support problems than outsourcing, because in-house teams are generally cheaper if the company has 250 to 500 computer units and because company employees are more loyal and more willing to take on extra work. Outsourcing is appropriate for smaller companies, but large firms that can afford an in-house support department should consider implementing one. In-house help desks solve user problems better than vendor' hot lines; a vendor can only tell users how to use a particular product feature, while the in-house help desk can tell uses which product to use. 'Software evangelists' are more mission-oriented than trainers and traditional help desk staffers, who tend to be mechanics-oriented.

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DOCUMENT 39
AU AUTHOR: Jerome, Marty.
TI TITLE: Best bets for tech support when it's your nickel. (pay-as-you-go services) (includes related article on buying a Super VGA card) (Consumer's Edge).
IL ILLUSTRATIONS: Illustration. Graph.
JN JOURNAL: PC-Computing.
VO VOLUME/PAGES: V3. P334(2).
DA DATE/YEAR: Nov, 1990.
SU SUBJECT: Support Services. Maintenance. Information Services. Microcomputers. Computer industry. Third-Party Maintenance. Microcomputers - Maintenance and repair. Computer industry - Services. Street prices of Intel 80286-based microcomputers. (graph).
AB ABSTRACT: Third-party maintenance vendors offer a wide range of support services for microcomputer users. Third-party services are usually better than services supporting specific applications because most problems stem from conflicts between hardware products or hardware and software. Businessland's SolutionLine Plus charges $18.98 to $38 per single solution. Businessland will answer the question over the phone, call back with a solution or send a technician to solve the problem. Micro Support Resources's Help Desk Express charges $200 per year for unlimited service by phone. CompuAdd's PC Direct Help service offers a 900-number charging $2 per minute. The first minute, which is used to determine whether the problem can be answered, is free. Kirin International's Answer Line offers similar service 24 hours per day. Microsoft, Lotus and Aldus also have 900 numbers to support their products.

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DOCUMENT 40
AU AUTHOR: Salamone, Salvatore.
TI TITLE: New methods help ease net worker shortages.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P1(6).
DA DATE/YEAR: Oct 29, 1990.
SU SUBJECT: Employee. Recruitment. Networks. Outsourcing. Support Services. Shortage. Network Management.
AB ABSTRACT: Network managers are having an increasingly difficult time finding skilled employees and staff shortages seem to be worsening. There are several different methods in tackling this problem. Some firms are hiring non-specialists to solve minor problems. This is prevalent in companies that have network help desks, where non-technical workers can perform certain tasks that free technical specialists to work on more calls. Help desk automation software can cut the time spent diagnosing problems and training help desk personnel. A more centralized approach to network management can also ease staff shortages. Companies are changing their recruitment practices, recruiting qualified staff from the military environment and from pools of network personnel laid off from major companies. Other firms seek help from retirees who are re-hired for fixed-length projects.

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DOCUMENT 41
AU AUTHOR: Desmond, Paul.
TI TITLE: Bank programs NetView to screen help desk messages. (SunTrust Banks Inc).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P15(2).
DA DATE/YEAR: Nov 19, 1990.
SU SUBJECT: International Business Machines Corp. - Products. SunTrust Banks Inc. - Communication systems. NetView (Computer network software) - Usage. Office Automation. Network Management Software. Support Services. User Assistance. Banking. What NetView means to SunTrust banks. (chart).
AB ABSTRACT: SunTrust Banks, Inc is using automated features in IBM's network management software, NetView, which is helping the company improve its network management without having to increase its network operations staff. NetView's automated command features allow SunTrust to suppress approximately 85 percent of the messages produced by Virtual Telecommunications Access Method (VTAM). Therefore, NetView operators need to view only critical alerts and alarms. With these automated features, SunTrust has been able to avoid adding about five staff members to the company's help desk area. Operators can also use Command Lists (CLists) which are included in IBM's Automated Network Solution Pac to allow NetView to recover terminals that go out of service due to line problems that can sever communications. NetView puts the terminal back into service to CICS and tests to ensure that the link works.

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DOCUMENT 42
AU AUTHOR: Eckerson, Wayne.
TI TITLE: MSR rolls out services for its large help desk users. (Micro Support Resource Corp).
JN JOURNAL: Network World.
VO VOLUME/PAGES: V7. P27(2).
DA DATE/YEAR: Nov 19, 1990.
SU SUBJECT: Micro Support Resource Corp. - Services. Support Services. Microcomputers. MS-DOS. User Assistance. On-Line.
AB ABSTRACT: Micro Support Resource Corp is announcing Help Desk Express, which adds new services to the company's on-line microcomputer support service, Answerline. Subscribers call Answerline to get help in the use of MS-DOS-based microcomputers, software programs and peripherals. Help Desk Express offers advice on selection of software and hardware products, software installation support, troubleshooting and network and microcomputer maintenance. The service is designed to help supplement help desks in large companies. MSR's help desk operates from 8 am to 8 pm. A staff of six full-time and four part-time operators answer 250 to 300 calls daily. The operators access a proprietary knowledge-based help desk system from a minicomputer. The system consists of a data base of over 40,000 user questions and answers. A subscriber profile includes hardware and software configurations.

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DOCUMENT 43
AU AUTHOR: Donohue, James F.
TI TITLE: Saber Detective software targets VMS system security. (Saber Software's Detective Series of VMS systems software) (product announcement).
JN JOURNAL: Digital Review.
VO VOLUME/PAGES: V7. P10(1).
DA DATE/YEAR: Nov 19, 1990.
SU SUBJECT: Connection Detective (Network management software) - Product introduction System Detective (Network management software) - Product introduction Session Detective (Network management software) - Product introduction ChalkTalk (Network management software) - Product introduction. Product Introduction. Systems Software. Network Management Software. User Assistance. Data Security. Access Controls. Network Monitors. Saber Software Inc. - Product introduction.
AB ABSTRACT: Saber Software introduces the Detective Series of VMS systems software intended to enhance data security, user management and help-desk operations. Connection Detective monitors network traffic at the packet level and lets network managers analyze data by source, destination address or protocol type; it costs from $1,200 for DEC workstations to $4,800 for VAX 9000s. System Detective supports setting of alarms on operator consoles to indicate that unauthorized users are trying to log on; it costs from $2,000 to $10,600. Session Detective lets network managers control up to 256 user sessions according to user name, process, terminal type, privileges, priority or group membership; it costs from $1,800 to $9,800. ChalkTalk lets help-desk staff view data being entered by users and helps them execute VMS applications or DCL commands; it costs from $1,400 to $7,800.

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DOCUMENT 44
AU AUTHOR: Butterworth, Graeme.
TI TITLE: Checking off the crowning details. (last in a series on corporate moves).
IL ILLUSTRATIONS: Illustration. Photograph. Cartoon.
JN JOURNAL: Computer Weekly.
VO VOLUME/PAGES: P32(2).
DA DATE/YEAR: November 3, 1988.
SU SUBJECT: Management of EDP. Moving a Facility. Guidelines.
AB ABSTRACT: Setting up a new computer center is a major project, and its success requires that management procedures be in place to coordinate all activities. Project teams should be responsible for purchase, migration, installation, and acceptance testing of hardware, software, networks, systems, and data at the new site. Additionally, special furniture and equipment must be acquired, operational procedures such as computer security procedures should be implemented and tested, and deliveries should be coordinated at the new computer center. The project management team must maintain tight control over the progress of the implementation and any outstanding problems. A help desk facility can be set up to assist personnel, log and monitor problems, and report outstanding problems to management. Management must determine key decision points at which live migration can be attempted, then monitor progress and

assess the success or failure of the attempt.

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DOCUMENT 45
AU AUTHOR: Dortch, Michael.
TI TITLE: The here and now of ISDN on display at NetPower '89. (integrated services digital networks) (product announcement).
JN JOURNAL: Telephony.
VO VOLUME/PAGES: V216. P8(1).
DA DATE/YEAR: March 20, 1989.
SU SUBJECT: Integrated services digital networks - product introduction. NetPower - 1989. Telephone systems - product development. Telephone companies - product introduction. Product Introduction. ISDN. NetPower. Trade Shows. Telephone systems. Telephone companies. Telecommunications. Communications Service Suppliers. AT and T Network Systems - product development.
AB ABSTRACT: AT&T Network Systems stressed two ISDN-related themes at NetPower '89, held in Scottsdale, AZ, in Mar 1989: first, ISDN is a reality; and second, ISDN depends on and is supported by other manufacturers besides AT&T. Several ISDN services were introduced. MIS Help Desk, Integrated Office, Purchasing, and Personnel Security, four ISDN applications, were also made available. The most interesting of these is MIS Help Desk, which allows users in a corporate support center to display a caller's location, hardware and software configuration and support history as soon as a call is received. Twenty-seven companies exhibited at the show, including Banyan Systems, Digital Equipment Corp, Wang Laboratories and IBM and Sears, which introduced their videotex service Prodigy.

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DOCUMENT 46
AU AUTHOR: Root, Carl.
TI TITLE: VAR help desks. (Special report - Data General Corp. and value-added resellers).
JN JOURNAL: DG Review.
VO VOLUME/PAGES: V9. P40(2).
DA DATE/YEAR: March, 1989.
SU SUBJECT: Value-Added Resellers. Computer Retailing. Dealers and Agents. Distributors. User Assistance. Consultants. Customer Relations. Support Services. Data General Corp. - customer relations.
AB ABSTRACT: Customers with 24-hour operations need to know how and where to get help at any hour. Data General Corp does provide a 24-hour 800-number help service, but the agreement most value-added resellers (VARs) have with DG requires the VAR to provide a front-line help desk. There are several benefits to the customer to having the VAR provide initial help support: the VAR knows the customer's hardware and software configuration; the VAR may have encountered the same problem before; and VAR staff know their customers. At the VAR's location, the help desk should have a separate place, not just the desk of the on-call staff member. A separate location helps staff concentrate on helping customers, not fitting customers in around other work. Support documentation and customer history files can be maintained more efficiently and reliably at a centralized help desk. VARs are in an excellent

position to provide front-line help.

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DOCUMENT 47
AU AUTHOR: Brenner, Aaron.
TI TITLE: LANs: fighting network phobia. (includes related article on moving networked data users).
IL ILLUSTRATIONS: Illustration. Photograph. Table.
JN JOURNAL: Computerworld.
VO VOLUME/PAGES: V23. P47(2).
DA DATE/YEAR: July 17, 1989.
SU SUBJECT: Resistance to Change. Local Area Networks. MIS. Management Style. Local area networks (Computer networks) - employee participation. (Management schemes used to ease the transition to LANs.).
AB ABSTRACT: Corporate end users who have been satisfied with mainframe terminals or standalone microcomputers are often suspicious of local area networks (LAN). While terminal users believe LANs will complicate their work, microcomputer users fear losing control of data and applications. A key problem with LAN planning and implementation is that most computer manufacturers and information systems managers focus on technology issues rather than business needs. Strategies some MIS managers are using to promote user acceptance of LANs include using easy-to-use electronic mail and databases, basic classes in network use, a menu item for calling the Help desk and standardized microcomputer application software.

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DOCUMENT 48
AU AUTHOR: Currid, Cheryl.
TI TITLE: Exasperating as it is, a help-desk must keep the faith. (Risky Business) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V6. P71(1).
DA DATE/YEAR: July 24, 1989.
SU SUBJECT: Support Services. MIS. Management. Information resources management - technique.
AB ABSTRACT: There are no simple answers to the problems that attend user support services. Help-desks are one solution that has not helped much. Most corporate help desks are organized in such a way as to ignore the move toward greater connectivity. There is one help desk for microcomputers, another for mainframes, another for software installation and another for this and another for that. The user is no longer sure who to call. Help desks must combine their resources by creating a data base that identifies what machine is where in an organization.

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DOCUMENT 49
AU AUTHOR: Senia, Al.
TI TITLE: ADP, IBM ink pact. (Automated Data Processing) (service agreement).
JN JOURNAL: Computer Reseller News.
VO VOLUME/PAGES: P91(1).
DA DATE/YEAR: Sept 4, 1989.

SU SUBJECT: Automated Data Processing Inc. - contracts and specifications. International Business Machines Corp. - contracts and specifications Maintenance Contracts. Brokerage Industry. Microcomputers. IBM PS-2 (Microcomputer) - maintenance and repair.
AB ABSTRACT: Financial services value-added reseller Automated Data Processing (ADP) has signed a multi-year agreement with IBM for the vendor to take responsibility for service requirements for the PS/2 microcomputers provided to ADP brokerage clients. IBM will provide site preparation, installation, maintenance and support services. All services were previously handled directly by ADP. Some ADP employees involved in maintenance and repair will become IBM employees. ADP will maintain its help desk as some questions, such as those related to the proprietary software, are not IBM-related.

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DOCUMENT 50
AU AUTHOR: Ryan, Alan J.
TI TITLE: Bank South agrees to cede control of data center to IBM.
JN JOURNAL: Computerworld.
VO VOLUME/PAGES: V23. P22(1).
DA DATE/YEAR: Oct 9, 1989.
SU SUBJECT: Bank South Corp. - data processing. International Business Machines Corp. - services. Outsourcing (Office services) - usage. Outsourcing (Office services). Information Centers.
AB ABSTRACT: IBM will design, build and operate a data center for Bank South Corp. The $5 million, 10-year contract is an example of a growing trend toward outsourcing data center operations. IBM will supply the hardware and software for the center, and subcontractor Computer Task Group Inc will take care of the day-to-day operations. The current data center employees of South Bank will have the option of transferring to Computer Task Group, and end users in the bank will not be affected by reorganization. Support will be supplied on a Help-desk basis, and the bank expects substantial savings by avoiding direct investment in hardware and software that becomes so quickly outdated.

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DOCUMENT 51
AU AUTHOR: Desmond, Paul.
TI TITLE: User automates help desk, net control with IBM tools. (McKesson Corp.).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Network World.
VO VOLUME/PAGES: V6. P1(2).
DA DATE/YEAR: Nov 13, 1989.
SU SUBJECT: McKesson Corp. - product development. International Business Machines Corp. - manufactures. Program Development Tools. Applications. Network Management Software. Multivendor Systems. Product Development. McKesson's net management system ties it all together.
AB ABSTRACT: McKesson Corp is using IBM's OS-2-based Problem Management Productivity Services (PMPS), a software tool for automating help desk functions, to build a network management system capable of controlling equipment from multiple vendors. The software enables users with no programming knowledge to write

applications in an English-type language. The tools enable McKesson to develop its own automated help desk application and serve as a foundation for centralizing control of different network management systems. Specifically, McKesson has used the tools to develop its Help Desk Call Management System, which automates data entry to other host-based and remote problem management systems. McKesson is also developing software that will ship alarm data from its network devices to IBM's NetView network management system.

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DOCUMENT 52
AU AUTHOR: Kador, John.
TI TITLE: Pepsico merges help-desk service.
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: MIS Week.
VO VOLUME/PAGES: V10. P1(2).
DA DATE/YEAR: Nov 6, 1989.
SU SUBJECT: Support Magic (Computer program) - usage. User Aids. Cost Reduction. Support Services. Pepsico Inc. - automation. Magic Solutions - manufactures.
AB ABSTRACT: Pepsico Inc consolidated its computer help-desk service for mainframe and personal computer users and, in the process, improved response time, cut costs, and released resources for its distributed information systems. The single central help desk also freed applications development staff from problems that took them away from their work. The cost savings are significant, according to the systems analyst who initiated the changes. The software at the heart of the revamped help desk is called Support Magic from Magic Solutions.

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DOCUMENT 53
AU AUTHOR: Taylor, Gayle.
TI TITLE: Houston Center boasts help, demonstration facilities.
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Government Computer News.
VO VOLUME/PAGES: V5. P92(2).
DA DATE/YEAR: Aug 29, 1986.
SU SUBJECT: Information Systems. Information Management. Government Agency. Data Processing. Computer Services. User Assistance. Information Centers. NASA.
AB ABSTRACT: NASA's Data Processing Systems Division at the Lyndon B. Johnson Space Center in Houston is in charge of managing information and providing answers for user problems. One of the biggest U.S. information centers, it is available for division personnel to utilize in their job of providing users with one site for communication on product services, problem resolution, and consultation. Computer Sciences Corp., a company with expertise in planning and operating information centers, is the support contractor for the division. The division's services include a user-assistance help desk, a user workstation support group for systems and software support, support services for 40 software and 200 hardware products (both training and administration), requirements assessment and analysis, database administration, technical documentation, education, and product exhibits.

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DOCUMENT 54

AU AUTHOR: Coursey, David.

TI TITLE: Financial firm finds PC-ATs are where it's at.

IL ILLUSTRATIONS: Illustration. Portrait.

JN JOURNAL: MIS Week.

VO VOLUME/PAGES: V7. P20(1).

DA DATE/YEAR: June 30, 1986.

SU SUBJECT: Hardware Selection. Equipment Acquisition. Corporations. Applications. Personal Computers. Manufacturers. Financial Services. Spreadsheets. Murray Financial Corp. - planning. Wayne Sadin.

AB ABSTRACT: Murray Financial Corp. is one of the many companies that have decided to move from IBM PCs to PC ATs in their offices as the role of personal computers in MIS operations continues to grow. Wayne Sadin, head of Murray Financial's MIS department, described the company's move from the traditional separation of mainframe and personal computer management, which it perceived as overly complicated, to an MIS structure that combines both operations into a new function, called Decision Support, to help end-users of all computer systems in the company. The Decision Support department runs a help desk that solves the hardware and software problems of users of all the company's systems, but not all the traditional barriers have been overcome. The MIS department is still divided into several distinct operations and there is still a considerable amount of confusion within the department, but the department isbetter able to serve the overall computer needs of its employees and clients with the decentralized system. How the system improves software support, the AT's ability to handle large spreadsheets, and the preference for local retailers are described.

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1 HYPERTEXT
RESULT 272

2 NEURAL AND NETWORKS
RESULT 101

3 1
RESULT 272

4 NEURAL ADJ NETWORKS
RESULT 98

5 MULTI ADJ MEDIA
RESULT 21

6 MULTIMEDIA
RESULT 424

7 HELP ADJ DESK
RESULT 18

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DOCUMENT 1
AU AUTHOR: Ferranti, Marc.
TI TITLE: Magic's help-desk 'solution' offers more tricks for IS staffs. (information systems) (Magic Solutions Inc. upgrades help-desk software) (product announcement).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P31(2).
DA DATE/YEAR: Jan 21, 1991.
SU SUBJECT: Software packages - Product introduction. Information resources management - Computer programs. Magic Solutions Inc. - Product introduction. SupportMagic 1.5 (Computer program) - Product introduction.
IS ISSN: 07401604.

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DOCUMENT 2
AU AUTHOR: Rayl, Eric.
TI TITLE: SupportMagic tops help-desk software; outdated interface designs undermine easy operation of other packages. (Software Review) (overview of four evaluations of help-desk software packages) (includes related articles on Analyst's Choice, testing methodology and Btrieve vs. Progress database engines) (evaluation)
IL ILLUSTRATIONS: Illustration. Table. Chart.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P63(4).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Software packages - Evaluation. Computer software industry - Products. BusinessWise Inc. - Products. Computer Associates International Inc. - Products. Magic Solutions Inc. -

Products. Strategic Microsystem Corp. - Products. SupportWise 2.3 (Computer program). CA-Netman/MRM Professional 3.2 (Computer program). SupportMagic 1.5 (Computer program). Customer Support System 3.2 (Computer program). Analyst's scoreboard. (table). Specs. (table). How help-desk software works. (chart).

AB ABSTRACT: Four help-desk software packages designed to simplify the task of providing internal computer support are reviewed. Help-desk programs log support calls into a queue that includes subject, status and the name of the person responsible for resolving the problem. Computer Associates International Inc's CA-Netman/MRM Pro and Magic Solutions Inc's SupportMagic are specifically designed for internal support, while BusinessWise Inc's SupportWise and Strategic Microsystem Corp's Customer Support System 3.2 are external customer-service systems that can be implemented internally. The internal programs are more powerful and flexible and offer a modular design. SupportMagic is rated an Analyst's Choice because its interface is much more sophisticated and up to date than those of the other three products.

IS ISSN: 07401604.

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DOCUMENT 3

AU AUTHOR: Rayl, Eric.

TI TITLE: BusinessWise Inc: SupportWise 2.3. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).

IL ILLUSTRATIONS: Illustration. Table.

JN JOURNAL: PC Week.

VO VOLUME/PAGES: V8. P63(2).

DA DATE/YEAR: Feb 4, 1991.

SU SUBJECT: BusinessWise Inc. - Products. SupportWise 2.3 (Computer program). Vital signs. (table).

AB ABSTRACT: BusinessWise Inc's SupportWise 2.3 help-desk software is a program designed for external customer service that can also be deployed within an organization. It is powerful and versatile, but many of its features work best in external situations involving contracts, pay-per-call billing and purchase-order acceptance. SupportWise is available for DOS, Unix, VMS and BTOS operating platforms and uses Progress Software Corp's Progress DBMS, which users must purchase separately for $200 to $2,000. Its interface and documentation are Unix-oriented, but its menu trees can be customized for specific uses. The software has a powerful, built-in search facility that lets users associate keywords with particular records and perform searches on raw text. SupportWise sells for $2,500 for a single user and $9,000 for an eight-user LAN system.

IS ISSN: 07401604.

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DOCUMENT 4

AU AUTHOR: Rayl, Eric.

TI TITLE: Computer Associates International Inc.: CA-Netman/MRM Professional 3.2. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).

IL ILLUSTRATIONS: Illustration. Table.

JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P75(1).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Computer Associates International Inc. - Products.
CA-Netman/MRM Professional 3.2 (Computer program). Vital signs.
(table).
AB ABSTRACT: Computer Associates International Inc's CA-Netman/MRM Professional 3.2 help-desk software is written in Progress and provides a common interface on microcomputer, mainframe and DEC VAX versions. Its documentation is excellent, but the user interface is outdated and awkward. The program provides minimal on-screen information about its data-entry fields; most commands are function-key driven. There is no context-sensitive help. CA-Netman/MRM Pro uses 'Action Requests' and 'Memo Files.' The Memo Files have been rendered obsolete by today's groupware and electronic mail package. A Training and Support Library module consists of Training Notes, Support Notes and Product Notes modules. CA-Netman/MRM Pro costs $4,995 for a single user and $7,495 for a 15-user LAN version.
IS ISSN: 07401604.

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DOCUMENT 5
AU AUTHOR: Rayl, Eric.
TI TITLE: Magic Solutions Inc.: SupportMagic 1.5. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P76(2).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Magic Solutions Inc. - Products. SupportMagic 1.5 (Computer program). Vital signs. (table).
AB ABSTRACT: Magic Solutions Inc's SupportMagic 1.5 help-desk software is designed specifically for internal computer support and is easy to install and use. The user-friendly interface has pull-down menus, pop-up dialog boxes and context-sensitive help. Data access is very fast, and the program uses Novell's Btrieve DBMS. SupportMagic has built-in security features; individual users can be assigned specific rights down to the field level. Magic Solutions offers an extra-cost add-in, MagicTree, that provides expert-system technical assistance. SupportMagic 1.5 costs $3,995 for a single-user version and $7,995 for an eight-user network version.
IS ISSN: 07401604.

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DOCUMENT 6
AU AUTHOR: Rayl, Eric.
TI TITLE: Strategic Microsystems Corp.: Customer Support System 3.2. (Software Review) (one of four evaluations of help-desk software in 'SupportMagic tops help-desk software') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P76(1).
DA DATE/YEAR: Feb 4, 1991.

SU SUBJECT: Strategic Microsystem Corp. - Product introduction. Customer Support System 3.2 (Computer program). Vital signs. (table).
AB ABSTRACT: Strategic Microsystems Corp's Customer Support System 3.2 help-desk software uses the fast Novell Btrieve database engine but suffers from a dated user interface. The data-entry screens are uncluttered, but lack context-sensitive help or pull-down menus. Users planning to configure Customer Support System for internal support need to be cautious when setting up the program because it is designed as an external user-support package. Its 'Client,' 'Company,' 'Contact' and 'Industry' terms must be mapped to those appropriate to an internal help desk. Codes such as 'Product' and 'Priority' must be redefined, and there is no provision for creating new codes during a session of logging calls. Customer Support System costs $995 for a single user and $1,995 for unlimited users.
IS ISSN: 07401604.

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DOCUMENT 7
AU AUTHOR: Schroeder, Erica.
TI TITLE: Help-desk buyers need flexibility, better reporting. (survey of users of help-desk software packages).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P63(3).
DA DATE/YEAR: Feb 4, 1991.
SU SUBJECT: Software packages - Usage. BusinessWise Inc. - Products. Computer Associates International Inc. - Products. Magic Solutions Inc. - Products. Strategic Microsystem Corp. - Products. SupportWise 2.3 (Computer program) - Usage. CA-Netman MRM Professional 3.2 (Network management software) Usage SupportMagic 1.5 (Computer program) - Usage. Customer Support System 3.2 (Computer program) - Usage.
AB ABSTRACT: Buyers of four help-desk software packages say that flexible reporting is a key factor in purchasing decisions. Users like packages that they can *configure* to suit their needs but complain that reporting is not flexible enough in most programs. Magic Solutions Inc's SupportMagic earns praise for its internal-use orientation and fast database. One user is especially pleased with its add-in MagicTree expert-system module. Buyers of BusinessWise Inc's SupportWise are pleased with the program's knowledge base and the variety of ways in which users can search the database. Strategic Microsystems Corp's Customer Support System is praised for its efficient data retrieval and ease of learning. A Customer Support System user notes that the program's reports are good but would like to see more flexibility. Computer Associates International Inc's CA-Netman/MRM Pro is oriented toward inventory control; users like it as an alternative to mainframe-based packages.

IS ISSN: 07401604.

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DOCUMENT 8
AU AUTHOR: Currid, Cheryl.
TI TITLE: Here comes the computer training debate, again. (corporate computer training) (Risky Business) (column).

JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P74(1).
DA DATE/YEAR: March 11, 1991.
SU SUBJECT: Employees, Training of - Economic aspects. Computer industry - Products. Computer software - Usage.
AB ABSTRACT: The recession has prompted many corporations to consider curtailing computer training programs, but that decision would be a mistake for most firms. Corporate users tend to have an inflated impression of their level of computer skills and actually have a lot to learn from training courses - even those classes concerned with the basic operation of common software programs. Training can help to tap the full value of expensive computer equipment and can make employees faster and more efficient by teaching them new skills. Many help-desk calls are attributable to users unfamiliar with their software programs, demonstrating the need for an accurate assessment of employee computing skill levels.
IS ISSN: 07401604.

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DOCUMENT 9
TI TITLE: New call tracking system edition to give help-desk managers a lift. (product announcement).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P38(1).
DA DATE/YEAR: April 15, 1991.
SU SUBJECT: Software packages - Product introduction. Computer software industry - Product introduction. Answer Set Corp. - Product introduction. Call Tracking System, Help Desk (Computer program) - Product introduction.
IS ISSN: 07401604.

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DOCUMENT 10
AU AUTHOR: Eskow, Dennis.
TI TITLE: Wendy's turns to PCs to beef up operations. (Wendy's fast-food chain automating 1,200 stores).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P121(2).
DA DATE/YEAR: Feb 12, 1990.
SU SUBJECT: Fast food restaurants - automation. Microcomputers - usage. Wendy's International Inc. - automation.
AB ABSTRACT: Wendy's International Inc prepares to implement a microcomputer-based system for decentralizing its data-processing management. Each of Wendy's 1,200 outlets will have an 80386-based microcomputer in its back room that will take information from the store's IBM 3860 POS registers at the end of the day. The microcomputers will then dump the day's data into a mainframe at company headquarters in Dublin, Ohio. Wendy's is experimenting with a decision-support system built on 1st Class Expert Systems Inc's 1st-Class HT artificial intelligence shell. The program is designed to make the company's full-time help desk responses faster and more consistent. Improved support will lower operating costs for the company's information systems department. Analysts say that information systems putting small computers close to the customer

are a trend in the fast-food industry).
IS ISSN: 07401604.

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DOCUMENT 11
AU AUTHOR: Eskow, Dennis.
TI TITLE: Firms unite to give help desks the help they need.
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P1(2).
DA DATE/YEAR: Feb 19, 1990.
SU SUBJECT: Expert systems (Computer science) - usage. Hypertext software - product development. Local area networks (Computer networks) - computer programs. Help Desk Expert Automation Tool (Computer program) - product development Help Desk Institute - product development. Expert systems to get PC users through the hot spots.
AB ABSTRACT: The Help Desk Institute, a consortium of 28 major corporations, is developing the Help Desk Automation Tool (HEAT), a hypertext-driven, local area network-based help-desk expert system. HEAT is intended to assist help-desk personnel by speeding up their response time and increasing their expertise in running the help desk. Help Desk Institute programmers are writing the application with C language and Nantucket Corp's Clipper development environment. Eventually, an independent firm will be formed that will own and market the application.
IS ISSN: 07401604.

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DOCUMENT 12
TI TITLE: A triage station for the help desk. (MIS support software) (Executive Briefing).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P128(1).
DA DATE/YEAR: Feb 26, 1990.
SU SUBJECT: Management information systems - usage. Computer software industry - services.
IS ISSN: 07401604.

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DOCUMENT 13
TI TITLE: PCs, cross-training build happy help desk. (use of microcomputers at Midcon Corp. help desk) (Executive Briefing).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P128(1).
DA DATE/YEAR: Feb 26, 1990.
SU SUBJECT: Microcomputers - usage. Management information systems - services. MidCon Corp. - data processing.
IS ISSN: 07401604.

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DOCUMENT 14
AU AUTHOR: Currid, Cheryl.
TI TITLE: Users take the path of least resistance - free help desk. (Risky Business) (column).

JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P109(1).
DA DATE/YEAR: May 28, 1990.
SU SUBJECT: Local area networks (Computer networks) - services.
AB ABSTRACT: Managers who are finding their help desks swamped with trivial questions from local area network users who are too lazy to fix the problem themselves might want to consider a chargeback system that would make users think twice before calling for help. Many calls to help desks have nothing to do with real network problems. Instead they are from users who need help changing printing cartridges, or from operators who refuse to read the documentation before trying to use a program. If users were charged a reasonable amount for MIS services, then the number of calls to the help desk would be reduced, and real problems could be dealt with in a timely fashion.
IS ISSN: 07401604.

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DOCUMENT 15
AU AUTHOR: Ferranti, Marc.
TI TITLE: Shrink-wrapped expert systems to help customer-support staffs. (Software Artistry Inc.'s Automated Helpdesk and Automated Labor Scheduler educational software) (product announcement).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P39(2).
DA DATE/YEAR: Sept 3, 1990.
SU SUBJECT: Expert systems (Computer science) - computer programs. Educational software - product introduction. Software Artistry Inc. - product introduction. Automated Helpdesk (Educational software) - product introduction. Automated Labor Scheduler (Educational software) - product introduction.
AB ABSTRACT: Software Artistry Inc offers three help-desk programs and a labor scheduler which are hypermedia-based expert-system applications. The programs are to be used by managers in fast-food and retail stores and additional source code is available for customizing the software. The Automated Helpdesk series is for support staffs that help IBM midrange system users. Different versions of Automated Helpdesk are available for the MS-DOS, 4680, 4684 and OS/400 operating systems, and all the versions use the same graphical user interface. Information is called up by using the mouse to click on icons. The Automated Labor Scheduler is also hypermedia-based and mouse-driven, however, graphical images are not supported. The Automated Labor Scheduler runs in all the environments supported by the Automated Helpdesk, except for the 4684 operating system. Runtime licenses cost $1,000 for microcomputers and $2,000 for minicomputers.
IS ISSN: 07401604.

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DOCUMENT 16
AU AUTHOR: Currid, Cheryl.
TI TITLE: A resourceful and rare bird is needed to man a help desk. (Risky Business) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V6. P70(1).

DA DATE/YEAR: June 26, 1989.
CF CARTRIDGE/FRAME NUMBER: 50F6136.
SU SUBJECT: Electronic data processing personnel - selection and appointment. Microcomputers - user education.

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DOCUMENT 17
AU AUTHOR: Currid, Cheryl.
TI TITLE: Exasperating as it is, a help-desk must keep the faith. (Risky Business) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V6. P71(1).
DA DATE/YEAR: July 24, 1989.
CF CARTRIDGE/FRAME NUMBER: 50K6253.
SU SUBJECT: Information resources management - technique.

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DOCUMENT 18
AU AUTHOR: Karon, Paul.
TI TITLE: Help desk gets help from troubleshooting system. (strategy: Harris Corp.).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P46(2).
DA DATE/YEAR: Jan 26, 1988.
CF CARTRIDGE/FRAME NUMBER: 43B5673.
SU SUBJECT: Harris Corp. - automation. Expert systems (Computer science) - computer programs. Information resources management - troubleshooting.

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1 HYPERTEXT
RESULT 272

2 NEURAL AND NETWORKS
RESULT 101

3 1
RESULT 272

4 NEURAL ADJ NETWORKS
RESULT 98

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DOCUMENT 1
AU AUTHOR: Pallatto, John.
TI TITLE: Neural networks come out of hiding.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P6(1).
DA DATE/YEAR: Nov 26, 1990.
SU SUBJECT: Neural networks (Computers) - Business use. Technology - Social aspects. Computer software industry - Products. NeuralWare Inc. - Products.
AB ABSTRACT: NeuralWare Inc is a software publishers that offers neural network software, a growing technology that is attracting big players in the corporate world. Large computer makers are pouring resources into the development of neural networks but the technology still remains immature. Neural networks mimic the way the human brain works by employing a model of interconnecting electrical switches to process large amounts of data. Applications that require pattern recognition, such as image processing, voice recognition and manufacturing quality control, are ideally suited for the neural network technology. Industry observers note that neural networks are not the panacea that many think they are and have a limited area in which they can be applied.
IS ISSN: 07401604.

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DOCUMENT 2
AU AUTHOR: Davis, Frederic E.
TI TITLE: Neural networks continue to fascinate scientists.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P6(1).
DA DATE/YEAR: Nov 26, 1990.
SU SUBJECT: Neural networks (Computers) - Usage. Technology - Research. Two approaches to neural networks. (chart).
AB ABSTRACT: Neural networks research looks for ways that human brain activities can be simulated in electronic circuits and software. Neural networks are best a performing pattern recognition tasks since pattern recognition allows the software to make evaluations and associations that allow the to solve problems where perfect answers are not required. Neural networks first intrigued computer

scientists in the 1940s and 1950s, but technology lagged so far behind that it was consigned to the realm of fantasy until the 1990s. Japanese companies are actively pursuing neural network technology with the help of the Japanese government and hopes to complete an ambitious 10-year plan by the end of the 1990s.
IS ISSN: 07401604.

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DOCUMENT 3
AU AUTHOR: Davis, Fred.
TI TITLE: Though the myth lives on, true AI is still just a dream. (artificial intelligence) (Looking Forward) (column).
IL ILLUSTRATIONS: Illustration. Cartoon.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P162(1).
DA DATE/YEAR: Dec 3, 1990.
SU SUBJECT: Artificial intelligence - Analysis. Computer science - History.
AB ABSTRACT: Artificial intelligence (AI) is a dream that will probably never been realized. AI has provided some good technologies and products, but not true thinking machines: instead, we merely have computers that record and play back our own intelligence. Early attempts at developing AI were stymied by the puny computing power of the 1940s, 1950s and 1960s. The advent of powerful microcomputers in the early 1980s revived the hope of AI. Vendors touted subsequent expert-system programs as true AI, when in reality these programs depended on rules and conditions provided by the users. Neural networks, in which the computer simulates the brain's ability to recognize patterns and draw inferences, appear to offer a more likely route to true AI. Current users must content themselves with artificial memory.
IS ISSN: 07401604.

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DOCUMENT 4
AU AUTHOR: Pallatto, John.
TI TITLE: NeuralWorks upgrade eases design process. (NeuralWare NeuralWorks Professional II/Plus) (product announcement).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P71(1).
DA DATE/YEAR: Dec 10, 1990.
SU SUBJECT: Neural networks (Computers) - Programming. Software packages - Product introduction. NeuralWare Inc. - Product introduction. Neuralworks Professional II Plus (Program development software) Product introduction.
IS ISSN: 07401604.

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DOCUMENT 5
AU AUTHOR: Davis, Fred.
TI TITLE: Neural networks: can we teach our computers to think? (Looking Forward) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V7. P166(1).
DA DATE/YEAR: Dec 10, 1990.

SU SUBJECT: Neural networks (Computers) - Innovations. Computer industry - Forecasts.
AB ABSTRACT: Neural networks hold potential as building blocks towards achieving a true artificial intelligence technology because they are patterned after the human brain. The actual technical challenge of building a computer to function on the level of the human brain is enormous and far beyond present capabilities. The human brain has 100 billion neurons and each is connected to 10,000 others via synapses. Neural networks function with the use of artificial neurons where each neuron is connected to at least one other neuron in a way similar to human brain synapses. Neural networks are based on some form of a learning model.
IS ISSN: 07401604.

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DOCUMENT 6
AU AUTHOR: Pope, Gregory T.
TI TITLE: Where brain and electronics meet may arise the ultimate thinking machine, the brainstorming computer.
JN JOURNAL: Omni.
VO VOLUME/PAGES: V13. P24(1).
DA DATE/YEAR: Feb, 1991.
SU SUBJECT: Traub, Roger - Research. Neural networks (Computers) - Product development.
IS ISSN: 01498711.

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DOCUMENT 7
AU AUTHOR: Thompson, Bill. Thompson, Bev.
TI TITLE: Overturning the category bucket. (the category concept needs more investigation) (artificial intelligence).
IL ILLUSTRATIONS: Illustration. Chart. Table.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V16. P249(4).
DA DATE/YEAR: Jan, 1991.
SU SUBJECT: Classification - Analysis. Artificial intelligence - Methodology. A rule-based decision tree. (chart). Induction training set. (table). Genetic training set. (table).
AB ABSTRACT: The classical view of categories as groups whose members share similar properties is often used as a building block in artificial intelligence (AI) technology, but the concept of categories deserves much more study. One important direction is an alternative view that asserts that categorization is inseparable from human experience, knowledge and imagination. This implies that AI and many other areas of learning have much to communicate to each other, though a viable language needs to be developed. The relationship between top-down categorization and bottom-up classification processes is explored. The latter is exemplified by such AI classification methods as induction systems, rule-based expert systems, genetic algorithms and neural networks. How decision trees demonstrate the categorization process and category formation are also discussed.
IS ISSN: 03605280.

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DOCUMENT 8

AU AUTHOR: Rasmus, Daniel W.

TI TITLE: Putting the experts to work: expert systems can capture and deploy the intricate thought processes of those who think for a living.

JN JOURNAL: Byte.

VO VOLUME/PAGES: V16. P281(4).

DA DATE/YEAR: Jan, 1991.

SU SUBJECT: Artificial intelligence - Programming. Neural networks (Computers) - Programming. Expert systems (Computer science) - Programming.

AB ABSTRACT: The difference between intelligent and conventional software applications is disappearing, as artificial intelligence (Ai) products are developed to solve real-world problems in many fields. Examples demonstrate the use of expert systems developed to capture the thought processes and expertise of knowledge workers, shell programs to develop neural networks and embedded applications. Southern California Edison (SCE) uses AICorp's KBMS knowledge processor to enable the utility's departments to configure their microcomputer purchases to comply with SCE policy. The data base version of Ward Systems Group's NeuroShell learns the relationships between defining and classifying characteristics of data in a data base and helps distribute the results. Neuron Data's Nexpert Object expert system is used to analyze a spreadsheet in a data base format and computer-aided design files.

IS ISSN: 03605280.

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DOCUMENT 9

AU AUTHOR: Sherald, Marge.

TI TITLE: Solving the unsolvable. (application of combinations of expert systems and neural networks to financial analysis and underwater vehicle control problems).

JN JOURNAL: Byte.

VO VOLUME/PAGES: V16. P284(2).

DA DATE/YEAR: Jan, 1991.

SU SUBJECT: Expert systems (Computer science) - Programming. Neural networks (Computers) - Programming. Gonzaga University. Computer Assisted Learning Center - Programming. General Dynamics Corp. Electronics Div. - Research.

AB ABSTRACT: Combinations of expert systems and neural networks are applied to the analysis of the financial health of businesses and to real-time control of underwater vehicles. The two artificial intelligence technologies are being applied to many real-world problems, despite the fact that the most massive neural networks have a tiny fraction of interconnections of even a cockroach. The four ways in which expert systems can be combined with neural networks are discussed. The financial analysis application was developed by Gonzaga University Computer Assisted Learning Center coordinator Don Barker with Knowledge Garden, NeuroShell and dBase III Plus. The General Dynamics Electronics Div Intelligent Systems Group combines an expert system, neural network and model-based system for real-time solution of problems an autonomous underwater vehicle may incur.

IS ISSN: 03605280.

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DOCUMENT 10
AU AUTHOR: Stein, Richard Marlon.
TI TITLE: Real artificial life. (combining algorithmic evolutionary mechanisms and knowledge representations to synthesize an a-life organism).
IL ILLUSTRATIONS: Illustration. Chart. Table.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V16. P289(7).
DA DATE/YEAR: Jan, 1991.
SU SUBJECT: Evolution - Computer simulation. Neural networks (Computers) - Usage. Rule-based programming - Usage. Rule-based system. (chart). Artificial neural network. (chart). Genetic algorithm: 1st and 2nd generations. (table).
AB ABSTRACT: Artificial-life (a-life) computer simulations are designed from a combination of evolutionary algorithms and selective coding of knowledge representations of the behavior of organisms. The goal of such simulations are to understand biological dynamics, particularly the evolution of life forms. Living organisms reproduce and exhibit specific functional behaviors such as adaptability. A knowledge-representation methodology employing artificial neural-networks, finite-state automata or collections of rules can simulate these activities. The simulation requires selective coding of 'genotypes' that represent the functions, goals and potential behavior of a-life organisms. Genetic algorithms utilizing reproduction, crossover and mutation parameters simulate biological evolution of the genotypes. Development, applications and future goals for neural networks and genetic algorithms are discussed.
IS ISSN: 03605280.

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DOCUMENT 11
AU AUTHOR: Dvorak, John C.
TI TITLE: BrainMaker Professional, version 1.5. (California Scientific Software's neural network program) (Cover story: best of 1990) (Software Review) (evaluation).
JN JOURNAL: PC Magazine.
VO VOLUME/PAGES: V10. P168(1).
DA DATE/YEAR: Jan 15, 1991.
SU SUBJECT: California Scientific Software - Products. Neural networks (Computers) - Computer programs. Software packages - Evaluation. BrainMaker Professional (Computer program).
AB ABSTRACT: California Scientific Software's BrainMaker Professional, $795, is an exciting, futuristic software implementation of a neural network. Neural networks recognize patterns within a data stream. System requirements include 512Kbytes of RAM and DOS 3.0 or later. Users can make BrainMaker Professional work for them in feeding data from football games and final scores to guessing scores based on pre-game data. Other uses include validating stock selections, picking a winning horse at the horse races or anything else in a user's imagination. Neural networks set up fake neurons that are based generally on the synapse mechanism of the human nervous system.

A scanner or data file presents a pattern to the network and the neurons create the patterns within the network. A feedback mechanism tells the network what guesses are right and wrong until the network can figure it out on its own.
IS ISSN: 08888507.

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DOCUMENT 12
AU AUTHOR: Sullivan, Eamonn.
TI TITLE: Braincel brings neural network features to Excel. (Braincel).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P14(1).
DA DATE/YEAR: Jan 14, 1991.
SU SUBJECT: Electronic spreadsheets - Product introduction. Software packages - Product introduction. Neural networks (Computers) - Computer programs. Promised Land Technologies Inc. - Product introduction. Braincel (Data analysis software) - Product introduction. Microsoft Excel 3.0 (Spreadsheet software) - Computer programs.
IS ISSN: 07401604.

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DOCUMENT 13
AU AUTHOR: Shandle, Jack.
TI TITLE: Low-cost links: Echelon may start a whole new industry with its local operating networks. (Echelon Corp.) (company profile).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Electronics.
VO VOLUME/PAGES: V63. P29(2).
DA DATE/YEAR: Dec, 1990.
SU SUBJECT: Markkula, Mike - Investment activities. Neural networks (Computers) - Innovations. Intelligent buildings - Innovations. Echelon Corp. - Innovations. *Echelon's* LON offers media independence and scalable transmission rates. (chart).
AB ABSTRACT: Echelon Corp, founded by Mike Markkula (Apple Computer co-founder) in 1988, markets a new communications product. Echelon's Local Operating Network (LON) is a combination of a low-cost processor IC with and ultrarobust communications protocol. The typical LON node will cost under $10. LONs can be used to link and control several types of equipment, including office equipment, appliances and automobiles. For instance, a LON can link the security system with the lighting in an office building by using the power lines as a communications medium. In factories, process controls can be connected by using spread-spectrum radio, power lines or infrared communication. The market for LONs is large and virtually untapped; Echelon Pres Kenneth Oshman predicts that in 1991 there will be around 4.5 billion nodes in the world where cheap intelligence could be useful. LON protocol covers the International Standards Organization's seven-layer stack. Up to 32,000 nodes per domain are supported by the LON operating system. A Neuron chip that integrates three 8-bit, on-chip processors controls each node. Echelon plans to license the technology to OEMs for $2,500. The LON Builder development system will be priced at $15,000.
IS ISSN: 08834989.

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DOCUMENT 14
AU AUTHOR: Port, Otis.
TI TITLE: The brainiest computers are becoming business-friendly. (Developments to Watch) (column).
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P137(1).
DA DATE/YEAR: Feb 18, 1991.
SU SUBJECT: Neural networks (Computers) - Business use. Computer software industry - Product introduction. Promised Land Technologies Inc. - Product introduction. Braincel (Data analysis software) - Product introduction.
IS ISSN: 00077135.

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DOCUMENT 15
AU AUTHOR: Nielsen, Paul.
TI TITLE: BrainMaker 2.0 tackles business brainteasers. (California Scientific Software's BrainMaker Professional 2.0 data analysis software) (Software Review) (First Look) (evaluation).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P37(2).
DA DATE/YEAR: Feb 25, 1991.
SU SUBJECT: California Scientific Software - Products. Computer software industry - Products. Software packages - Product introduction. Neural networks (Computers) - Computer programs. Artificial intelligence - Computer programs. BrainMaker Professional 2.0 (Data analysis software).
AB ABSTRACT: California Scientific Software's BrainMaker Professional 2.0 data analysis software, priced at $795, is available to upgrading users at $200. This impressive knowledge-based artificial intelligence software provides a neural network that solves business problems by tracking complicated patterns in data. BrainMaker 2.0 can determine neuron sensitivity, which can help to identify the data-capturing cells that could affect a given output. The upgraded version lets users train and tune the neural network. Version 2.0 also includes an improved user interface, support for expanded memory, and capacity to work with very large neural networks. BrainMaker Professional 2.0 is a fast as well as powerful data analysis tool.
IS ISSN: 07401604.

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DOCUMENT 16
AU AUTHOR: Meyer, Bernd. Hansen, Torben. Nute, Donald. Albersheim, Peter. Darvill, Alan. York, William. Sellers, Jeffery.
TI TITLE: Identification of the 1H-NMR spectra of complex oligosaccharides with artificial neural networks. (hydrogen nuclear magnetic resonance).
IL ILLUSTRATIONS: Illustration. Chart. Graph.
JN JOURNAL: Science.
VO VOLUME/PAGES: V251. P542(3).
DA DATE/YEAR: Feb 1, 1991.
SU SUBJECT: Oligosaccharides - Research. Nuclear magnetic resonance spectroscopy - Research. Pattern recognition systems - Research.

Neural networks (Computers) - Research. Symbolic representation of the structures of 1 through 13. (chart) Input patterns generated from the 1H-NMR spectra of 9 and 12. (graph) Weight plot of one hidden layer neuron. (graph).
IS ISSN: 00368075.

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DOCUMENT 17
AU AUTHOR: Nielsen, Paul.
TI TITLE: AbTech Corp. AIM 1.1. (Abductory Induction Mechanism) (Software Review) (one of four program development software evaluations in 'Expert systems fortify applications; four packages that generate C code differ in design, ease of use and robustness') (evaluation).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V8. P97(2).
DA DATE/YEAR: March 11, 1991.
SU SUBJECT: AbTech Corp. - Products. Computer software - Design and construction. Expert systems (Computer science) - Computer programs. Abductory Induction Mechanism 1.1 (Program development software). Company information summary. (table).
AB ABSTRACT: AbTech Corp's Abductory Induction Mechanism 1.1 (AIM), priced at $1,495, is an expert systems program development tool for the C programming language. This product is rated highly for ease of development, quality of code, overall performance, and ease of learning. A combination design incorporating elements of neural networks and rules-based expert systems, AIM is the evaluated product that provides the most automation in creating an expert system. AIM constructs a mathematical model to represent relationships, and is well-suited for problems involving unclear data. Yet the statistical basis of the program makes it less suitable for knowledge bases represented with a conventional dynamic decision tree. AIM's user interface is exceptionally good, with mouse support, pull-down menus and dialog boxes. Documentation is clear and well-illustrated.
IS ISSN: 07401604.

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DOCUMENT 18
AU AUTHOR: Port, Otis.
TI TITLE: Neural nets: turning computers into fast learners. (Developments to Watch) (column).
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P82(1).
DA DATE/YEAR: April 1, 1991.
SU SUBJECT: Neural networks (Computers) - Product introduction. Computer industry - Product introduction. Adaptive Solutions Inc. - Product introduction.
IS ISSN: 00077135.

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DOCUMENT 19
AU AUTHOR: Wright, David P. Scofield, Christopher L.
TI TITLE: Divide and conquer: neural networks take a novel approach to

the problems of automatic handwriting recognition. (Nestor Applied Systems' use of neural networks to recognize handprinted characters; includes related article on the CalliGraph graphics-tablet-based script-recognition software from Moscow-based ParaGraph).
IL ILLUSTRATIONS: Illustration. Chart. Table.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V16. P207(5).
DA DATE/YEAR: April, 1991.
SU SUBJECT: Optical character recognition devices - Design and construction. Neural networks (Computers) - Usage. Nestor Applied Systems NestorReader (Scanning device) - Design and construction Inmos Transputer (Microprocessor) - Usage. Nestor Applied Systems - Products. Sample edge templates. (chart). Three-layer neural network. (chart). Document imaging systems. (table).
AB ABSTRACT: Nestor Applied Systems has developed a combined software and neural-network- based multiprocessor add-in board, NestorReader, that can be trained in real time to read handprinted characters in English and Japanese. Forms are a major means of communication in our society, but automated recognition of handwritten characters on forms is a complex problem. NestorReader employs an Inmos Transputer-based neural network that can be trained by example to extract a set of feature vectors from each character and compare these to a previously trained and standardized set of characters. Details of the functioning of the handprinted character recognition technology are described. The NestorReader board in an IBM AT-compatible microcomputer recognizes about ten characters per second per transputer module, with recognition speed increasing linearly as new modules are added. The software includes a Microsoft Windows-based user interface.
IS ISSN: 03605280.

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DOCUMENT 20
TI TITLE: Neural network speeds reach new heights. (Ganglion - single-board processor).
JN JOURNAL: Design News.
VO VOLUME/PAGES: V47. P45(1).
DA DATE/YEAR: March 25, 1991.
SU SUBJECT: International Business Machines Corp. Almaden Research Center Product introduction Neural networks (Computers) - Product introduction. IBM Ganglion (Integrated circuit) - Product introduction.
IS ISSN: 00119407.

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DOCUMENT 21
AU AUTHOR: Malloy, Rich.
TI TITLE: Echelon: a $10 device controller.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V16. P158(1).
DA DATE/YEAR: June, 1991.
SU SUBJECT: Microcontrollers - Design and construction. Neural networks (Computers) - Usage. Echelon Corp. - Products. Echelon Neuron (Integrated circuit) - Design and construction. The Neuron

3120 chip. (chart).
AB ABSTRACT: Echelon Corp's Neuron device controller is based on a new chip that can communicate with other, similar chips in much the manner of biological neurons. The Neuron chip contains three 8-bit processors connected via a pipeline, 10Kbytes of ROM, 1Kbyte of RAM and 512 bytes of EEPROM. It is intended to be used in what Echelon calls a Local Operating Network (LON) with three 'communications transceivers' and an enhanced version of the C programming language called Neuron C. The LON Starter Kit consists of IBM AT-class software and an external box for simulating a LON; the individual Neurons can be programmed using Neuron C. A version of the Neuron chip that can access up to 42Kbytes of external memory will soon be available. Echelon officials argue that LONTalk, a peer-to-peer network protocol, is the most important component of the LON technology.
IS ISSN: 03605280.

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DOCUMENT 22
AU AUTHOR: Churchland, Paul M. Churchland, Patricia Smith.
TI TITLE: Could a machine think? (Artificial Intelligence: a Debate).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V262. P32(6).
DA DATE/YEAR: Jan, 1990.
SU SUBJECT: Artificial intelligence - analysis. Neural networks (Computers) - design and construction. Human information processing - models. Neural circuitry - models. Neural networks model a central feature of the brain's microstructure. (Nervous systems span many scales of organization.).

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DOCUMENT 23
AU AUTHOR: Vogelgesang, Peter.
TI TITLE: Drowning in data. (new approaches to data storage).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V15. P251(6).
DA DATE/YEAR: Feb, 1990.
SU SUBJECT: Computer storage device industry - analysis. An ideal binary storage device. A proposed serial memory system. Converting a two-dimensional matrix to a cornucopia.
AB ABSTRACT: Vast increases in demand for storing more and more data on smaller media have led to the development of higher-density storage, which uses a smaller magnetic or optical area for each bit of information. High capacities and data transfer rates tend to result in slow access times. Recording simultaneously on different surface areas is one solution to this problem, but is limited by mechanical precision. An all-electronic system recording in three dimensions would simplify recording systems and eliminate the need for mechanical precision. Major breakthroughs are needed in order to make such a system practical. Neural networks mimic the storage density of the human brain using adaptive rather than programmed logic. Bit size cannot continue to decrease forever, but data rates are likely to increase and access times to decrease in the future

through the use of well-designed transducer arrays.
IS ISSN: 03605280.

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DOCUMENT 24
AU AUTHOR: Henderson, Breck W.
TI TITLE: Neural network computers finding practical applications at Lockheed.
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Aviation Week & Space Technology.
VO VOLUME/PAGES: V132. P53(2).
DA DATE/YEAR: Jan 15, 1990.
SU SUBJECT: Neural networks (Computers) - research. Lockheed Missiles and Space Company Inc. - research.
IS ISSN: 00052175.

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DOCUMENT 25
AU AUTHOR: Johnson, R. Colin.
TI TITLE: Speak, memory. (cognizers, the next generation of machine intelligence).
JN JOURNAL: Omni.
VO VOLUME/PAGES: V12. P28(1).
DA DATE/YEAR: Feb, 1990.
SU SUBJECT: Artificial intelligence - product development. Neural networks (Computers) - product development. Syntonic Systems Inc. - product development.
IS ISSN: 01498711.

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DOCUMENT 26
AU AUTHOR: Barinaga, Marcia.
TI TITLE: Neuroscience models the brain.
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Science.
VO VOLUME/PAGES: V247. P524(3).
DA DATE/YEAR: Feb 2, 1990.
SU SUBJECT: Brain - Models. Neurobiology - research. Neurophysiology - models. Computers - scientific use.
AB ABSTRACT: In the past, computer models of the brain were not taken seriously by scientists interested in understanding brain physiology. These neuroscientists regarded most models as simply naive; the best were viewed as trivial computerized reenactments of what was already known about the brain. Today, however, models are appearing which are generating new hypotheses about brain function, hypotheses which can be experimentally tested in the lab. Allen Selverston of the University of California at San Diego points out that models are one way of deciding which aspects of experimental data are important and which simply represent extraneous information. Terrence Sejnowski of the Salk Institute believes that models do not actually solve problems, but they can provide a means for deciding which aspects of a problem are most likely to yield useful information upon further experimentation. Computerized neural networks, which are completely abstract entities consisting of numerous nodes and even more numerous internode connections, are not thought by neuroscientists

to represent how the brain actually performs its tasks. Nonetheless, for researchers trying to understand how a large set of neurons adapts and responds, neural nets provide an opportunity to explore highly parallel information processing in a defined environment. As scientists become more familiar with such systems, they may be able to bring new insights to neurobiological research. (Consumer Summary produced by Reliance Medical Information, Inc.).
IS ISSN: 00368075.

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DOCUMENT 27
AU AUTHOR: Meiklejohn, Ian.
TI TITLE: This does not compute yet; a radically new approach to computer design is exciting researchers and governments around the world. (neural computing) (Computing Matters) (column).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Management Today.
VO VOLUME/PAGES: P181(2).
DA DATE/YEAR: Nov, 1989.
SU SUBJECT: Neural computers - analysis. Computers - innovations. Artificial intelligence - innovations. Neural networks (Computers) - analysis.
IS ISSN: 00251925.

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DOCUMENT 28
AU AUTHOR: Dreyfuss, Joel.
TI TITLE: Machines will understand the world. (Today's Leaders Look to Tomorrow: Science) (60th Anniversary Edition).
JN JOURNAL: Fortune.
VO VOLUME/PAGES: V121. P69(1).
DA DATE/YEAR: March 26, 1990.
SU SUBJECT: Mead, Carver - interviews. Neural networks (Computers) - product development. Artificial intelligence - forecasts. California Institute of Technology - faculty.
IS ISSN: 00158259.

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DOCUMENT 29
AU AUTHOR: Kinoshita, June.
TI TITLE: Net result: folded protein; a neural network deciphers the structure of protein.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V262. P24(3).
DA DATE/YEAR: April, 1990.
SU SUBJECT: Protein folding - research. Neural networks (Computers) - scientific use.
IS ISSN: 00368733.

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DOCUMENT 30
AU AUTHOR: Henderson, Breck W.
TI TITLE: Parallel computers, neural networks likely areas for advancement in 1990s. (Aerospace Forecast & Inventory).
IL ILLUSTRATIONS: Illustration. Photograph. Graph.

JN JOURNAL: Aviation Week & Space Technology.
VO VOLUME/PAGES: V132. P91(3).
DA DATE/YEAR: March 19, 1990.
SU SUBJECT: Parallel computers - forecasts. Neural networks (Computers) - forecasts. Military electronics - forecasts. Military computers and software.
IS ISSN: 00052175.

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DOCUMENT 31
AU AUTHOR: Rennie, John.
TI TITLE: Cancer catcher; neural net catches errors that slip through Pap tests.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V262. P84(1).
DA DATE/YEAR: May, 1990.
SU SUBJECT: Neural networks (Computers) - medical use. Imaging systems in medicine - innovations. Pap test - automation.
IS ISSN: 00368733.

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DOCUMENT 32
AU AUTHOR: Buderi, Robert.
TI TITLE: Putting brain power into processors. (Developments to Watch) (column).
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P77(1).
DA DATE/YEAR: April 30, 1990.
SU SUBJECT: California Institute of Technology - research. Semiconductor chips - innovations. Neural networks (Computers) - research.
IS ISSN: 00077135.

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DOCUMENT 33
AU AUTHOR: Cole, Bernard C.
TI TITLE: A technical forum goes glitzy; how a once-sober conference is becoming a product showcase. (the International Solid State Circuits Conference).
JN JOURNAL: Electronics.
VO VOLUME/PAGES: V63. P8(2).
DA DATE/YEAR: April, 1990.
SU SUBJECT: Engineering research - conferences and meetings. Congresses and conventions - forecasts. International Solid State Circuits Conference - analysis. Semiconductor industry - conferences and meetings.
AB ABSTRACT: The International Solid State Circuits Conference (ISSCC) remains an important technical forum for solid state researchers and the companies that fund them, but ISSCC has also become a major marketing event for vendors. An example of the continuing technical focus was a 1990 conference session which discussed the outlook for integrated circuits with as many as a billion transistors. Such chips will probably debut before the year 2000. Possible applications include neural networks and high-definition television. Problems to be resolved include slow access times in dynamic

random-access memory chips, the use of internal versus external supply voltages, and scaling of static RAMs. Firms using the 1990 ISSCC to announce new products included Matsushita Electric Industrial Co Ltd, Philips Signetics Corp, Chips & Technologies Inc and IBM Corp, though the latter two were not at the site.
IS ISSN: 08834989.

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DOCUMENT 34
AU AUTHOR: Anderson, Philip W.
TI TITLE: Spin glass VII: spin glass as paradigm.
JN JOURNAL: Physics Today.
VO VOLUME/PAGES: V43. P9(2).
DA DATE/YEAR: March, 1990.
SU SUBJECT: Spin glasses - models. Neural networks (Computers) - research.
IS ISSN: 00319228.

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DOCUMENT 35
AU AUTHOR: Spencer, Michael.
TI TITLE: The essential neural net reading list.
JN JOURNAL: Whole Earth Review.
VO VOLUME/PAGES: P19(1).
DA DATE/YEAR: Summer, 1990.
SU SUBJECT: Neural networks (Computers) - books. Computers - books.
IS ISSN: 07495056.

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DOCUMENT 36
AU AUTHOR: Martin, Gale. Pittman, James. Wittenburg, Kent. Cohen, Richard. Parish, Tom.
TI TITLE: Sign here, please: with interactive tablets, you can input signatures, hastily jotted notes and rough sketches directly into your computer. (includes related article on the blackboard computational metaphor).
IL ILLUSTRATIONS: Illustration. Chart. Graph.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V15. P243(7).
DA DATE/YEAR: July, 1990.
SU SUBJECT: Computer terminals - Interactive terminals. Pattern perception - data processing. Written communication - data processing. Pattern recognition with neural networks. (Symbol vocabularies recognized by neural networks at MCC.). (Recognition accuracy as a function of the size of the training set.).
AB ABSTRACT: Computer-based interactive tablets are an emerging technology that input data to computers through sketching and writing on a sensitive flat panel with a stylus. The technology is based on the employment of the pen/pencil and paper used in so many common day-to-day activities, such as managing checkbooks, notebooks, forms, receipts, address books, and calendars. Many of these activities could be computerized, but most computers are not portable enough to be useful. The interactive tablet and stylus will be small enough to handle these tasks conveniently as well as accept data not easily entered by keyboard, such as Japanese

characters, equations and graphics. Communications with existing computers and networks, flat panel and stylus technologies, neural network techniques, and handwriting recognition and understanding are discussed.
IS ISSN: 03605280.

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DOCUMENT 37
AU AUTHOR: Welles, Edward O.
TI TITLE: Decisions, decisions. (Anatomy of a Start-Up) (includes related article featuring business experts' analysis of Neurogen Inc.) (company profile).
IL ILLUSTRATIONS: Illustration. Portrait. Table. Photograph.
JN JOURNAL: Inc.
VO VOLUME/PAGES: V12. P80(7).
DA DATE/YEAR: August, 1990.
SU SUBJECT: New business enterprises - management. Neural networks (Computers) - product development. Computer industry - management. Specialists - analysis. Neurogen Inc. - management. Kuperstein, Michael - management. Michael Kuperstein. Executive summary. The founder. Financials.
IS ISSN: 01628968.

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DOCUMENT 38
AU AUTHOR: Brody, Herb.
TI TITLE: The neural computer.
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Technology Review.
VO VOLUME/PAGES: V93. P42(7).
DA DATE/YEAR: August-Sept, 1990.
SU SUBJECT: Neural computers - analysis. Neural networks (Computers) - research. How a neural network learns.
IS ISSN: 00401992.

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DOCUMENT 39
TI TITLE: The Byte summit: flashes or smashes? (Which technologies will have a real impact in the 1990s and which will fade away?).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V15. P268(6).
DA DATE/YEAR: Sept, 1990.
SU SUBJECT: Computer industry - analysis.
AB ABSTRACT: A group of computer industry executives, analysts, observers and innovators offer their opinions on the technologies that will shape computing in the 1990s and those that will end with a whimper rather than a bang. The technologies discussed include integrated services digital network (ISDN);fiber optics, particularly with regard to Fiber Distributed Data Interface (FDDI); optical computing; neural networks; fuzzy logic; and chaos.
IS ISSN: 03605280.

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DOCUMENT 40
AU AUTHOR: Buonomano, Dean V. Byrne, John H.
TI TITLE: Long-term synaptic changes produced by a cellular analog of classical conditioning in Aplysia.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Science.
VO VOLUME/PAGES: V249. P420(4).
DA DATE/YEAR: July 27, 1990.
SU SUBJECT: Nerve tissue - research. Neurons - research. Nervous system - physiological aspects. Synapses - physiological aspects. (Training and testing of inputs of 2 sensory neurons to a motor neuron.) (Long-term associative plasticity of the synaptic connections.).
AB ABSTRACT: Both short-term and long-term memory are thought to occur from changes in the strength of synapses (connections between neurons, or nerve cells). Associative synaptic plasticity (capacity for being changed) is the activation of neural pathways at the same time that other pathways are activated. With associative synaptic plasticity, changes occur that are different than those which occur if the same pathways are activated at different times. Associative synaptic plasticity is thought to be the mechanism behind classical, or Pavlovian conditioning. Associative plasticity may also function in other higher forms of conditioning associative memories and the self-organization of neural networks. Various instances of associative synaptic plasticity have been shown in short-term situations. In Aplysia, connections between sensory and motor (functional) neurons, are considered a cellular analog of a classical conditioning protocol of short-term associative plasticity. Long-term (24 hour) associative synaptic plasticity has also been produced with excitatory postsynaptic potentials (EPSPs) in Aplysia. The EPSPs produced when activity was paired with a reinforcing stimulus was larger than in unpaired controls. Thus, both long-term and short-term associative plasticity can occur in the connection of sensory to motor neurons. The molecular mechanisms underlying long-term associative plasticity and classical conditioning can be analyzed with this system. (Consumer Summary produced by Reliance Medical Information, Inc.).
IS ISSN: 00368075.

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DOCUMENT 41
AU AUTHOR: Barron, Janet J.
TI TITLE: Chips for the nineties and beyond.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V15. P342(8).
DA DATE/YEAR: Nov, 1990.
SU SUBJECT: Semiconductor industry - Innovations. Microprocessors - Technique. Massively parallel and extendable architecture. (chart). The ShBoom stack-based chip. (chart). TI's high-speed GaAs microprocessor. (chart).
AB ABSTRACT: Many programmable microprocessors are being developed today to do things that once would have been considered only theoretically possible. Chaos, fuzzy logic, and neural network technology explore nonlinear ways of understanding that are too

vague for conventional computers. Neural networks are artificial systems that simulate the human brain, by learning from examples. Soon, microprocessors will be able to discriminate between and store odors, by creating a hierarchy of categories and subset classifications. Devices are being developed that, coupled with the appropriate software, will integrate a number of functions such as printing documents, desktop publishing, facsimile communications, and data transmission, into a single box. Stack-based processors, and devices fabricated from gallium arsenide instead of silicon are also in development.
IS ISSN: 03605280.

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DOCUMENT 42
AU AUTHOR: Manuel, Tom. Curran, Lawrence.
TI TITLE: The push for speed spurs work on parallel systems. (also includes a related article on other applications coming soon).
JN JOURNAL: Electronics.
VO VOLUME/PAGES: V61. P72(5).
DA DATE/YEAR: Oct, 1988.
SU SUBJECT: Parallel processing (Electronic computers) - technological innovations Computer industry - technological innovations. Computer graphics - technological innovations. Computer architecture - technological innovations. Microcomputers - technological innovations. Neural networks (Computers) - product development. Computer software - technological innovations. Reduced-instruction-set computers - product introduction. Unix (Operating system) - research.

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DOCUMENT 43
AU AUTHOR: Bower, Bruce.
TI TITLE: The brain in the machine: biologically inspired computer models renew debates over the nature of thought.
JN JOURNAL: Science News.
VO VOLUME/PAGES: V134. P344(2).
DA DATE/YEAR: Nov 26, 1988.
CF CARTRIDGE/FRAME NUMBER: 47G0009.
SU SUBJECT: Neural networks (Computers) - research. Artificial intelligence - research.

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DOCUMENT 44
AU AUTHOR: Ward, Darrell E.
TI TITLE: Gaze control. (brain-controlled computers).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Omni.
VO VOLUME/PAGES: V11. P30(1).
DA DATE/YEAR: Dec, 1988.
SU SUBJECT: Neural networks (Computers) - technological innovations. Computers, Special purpose - product development. Computer engineering - technological innovations. Computers and the handicapped - product development.

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DOCUMENT 45
AU AUTHOR: Freundlich, Naomi J.
TI TITLE: Brain-style computers. (neural-network computers).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Popular Science.
VO VOLUME/PAGES: V234. P68(6).
DA DATE/YEAR: Feb, 1989.
CF CARTRIDGE/FRAME NUMBER: 48A1587.
SU SUBJECT: Computers - technological innovations. Neural networks (Computers) - research. Hopfield, John J. - research. (Neural-network computer architecture.).

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DOCUMENT 46
AU AUTHOR: Simon, Barry.
TI TITLE: $100 neural network. (Software Review) (evaluation).
JN JOURNAL: PC Magazine.
VO VOLUME/PAGES: V8. P56(1).
DA DATE/YEAR: Feb 14, 1989.
CF CARTRIDGE/FRAME NUMBER: 48D1249.
SU SUBJECT: California Scientific Software - manufactures. Neural networks (Computers) - computer programs. Computer programs - evaluation. MS-DOS. BrainMaker (Computer program).

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DOCUMENT 47
AU AUTHOR: Sompolinsky, Haim.
TI TITLE: Statistical mechanics of neural networks.
IL ILLUSTRATIONS: Illustration. Chart. Graph.
JN JOURNAL: Physics Today.
VO VOLUME/PAGES: V41. P70(11).
DA DATE/YEAR: Dec, 1988.
SU SUBJECT: Neural networks (Computers) - research. Statistical mechanics - research. Neural circuitry - models. Network architectures. Errors per neuron. Phase diagram of the Hopfield model. Associative memory circuit with a biologically plausible architecture. Periodic behavior of an asymmetric stochastic neural circuit. (Capacity of a network of N neurons.).

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DOCUMENT 48
AU AUTHOR: Roberts, Leslie.
TI TITLE: Are neural nets like the human brain?.
JN JOURNAL: Science.
VO VOLUME/PAGES: V243. P481(2).
DA DATE/YEAR: Jan 27, 1989.
SU SUBJECT: Crick, Francis - attitudes. Neural networks (Computers) - analysis. Neural circuitry - computer simulation. Language acquisition - research.

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DOCUMENT 49
AU AUTHOR: O'Reilly, Brian.
TI TITLE: Computers that think like people. (includes related

article).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Fortune.
VO VOLUME/PAGES: V119. P90(4).
DA DATE/YEAR: Feb 27, 1989.
CF CARTRIDGE/FRAME NUMBER: 48G2049.
SU SUBJECT: Neural networks (Computers) - product development. Artificial intelligence - product development. Microcomputers - Programming. (Neural net processing abilities.).

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DOCUMENT 50
TI TITLE: Mead's Silicon Retina points toward brain-like processing. (Microbytes).
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P11(1).
DA DATE/YEAR: Feb, 1989.
SU SUBJECT: Synaptics Inc. - product development. Synaptics Silicon Retina - product development. Mead, Carver - technological innovations. Neural networks (Computers). Product development. Vision. Computer simulation.

****

DOCUMENT 51
AU AUTHOR: Jerome, Marty.
TI TITLE: Neural nets: back in style. (Includes related article: 'Whatever happened to AI?') (neural networks).
JN JOURNAL: PC-Computing.
VO VOLUME/PAGES: V2. P72(2).
DA DATE/YEAR: March, 1989.
CF CARTRIDGE/FRAME NUMBER: 48L1069.
SU SUBJECT: Artificial intelligence - technological innovations. Neural networks (Computers) - product development.

****

DOCUMENT 52
AU AUTHOR: Barron, Janet J.
TI TITLE: Solving the nearly unsolvable. (Software Review) (NeuroShell software from Ward Systems Group) (evaluation).
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P102(1).
DA DATE/YEAR: June, 1989.
SU SUBJECT: Ward Systems Group - evaluation. Neural networks (Computers) - computer programs. Problem solving - computer programs. NeuroShell (Computer program).

****

DOCUMENT 53
AU AUTHOR: Alkon, Daniel L.
TI TITLE: Memory storage and neural systems. (electrical and chemical changes which accompany conditioning applied to artificial network designs).
IL ILLUSTRATIONS: Illustration. Photograph. Chart. Graph.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V261. P42(9).

DA DATE/YEAR: July, 1989.
CF CARTRIDGE/FRAME NUMBER: 50D0777.
SU SUBJECT: Memory transfer - research. Neural conduction - research. Classical conditioning - physiological aspects. Neural networks (Computers) - research. Memory - research. (Transfer of behavioral response in the rabbit.). (Neural pathways involved in conditioning.). (Potassium-ion currents are reduced in the type-B photoreceptor cells.) (Membrane interactions during associative conditioning.). (Electrical and molecular profiles of the CA1 neurons.).

****

DOCUMENT 54
AU AUTHOR: Cooper, Leon.
TI TITLE: 'What does neural network technology suggest? That the brain the source of thought, memory, and consciousness - might be mimicked by a machine that thinks as well as or better than we do.' (First Word) (column).
JN JOURNAL: Omni.
VO VOLUME/PAGES: V11. P6(1).
DA DATE/YEAR: March, 1989.
SU SUBJECT: Neural networks (Computers) - analysis. Computer network architectures - product development.

****

DOCUMENT 55
AU AUTHOR: Churchland, Patricia Smith.
TI TITLE: From Descartes to neural networks. (discussion of the physicalist philosophy regarding the brain).
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V261. P118(1).
DA DATE/YEAR: July, 1989.
CF CARTRIDGE/FRAME NUMBER: 50D0853.
SU SUBJECT: Neural networks (Computers) - research. Body, Human (Philosophy) - analysis. Mind and body - philosophy.

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DOCUMENT 56
AU AUTHOR: Marbach, William D.
TI TITLE: Giving brainy computers cooler heads. (Developments to Watch) (column).
IL ILLUSTRATIONS: Illustration. Cartoon.
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P103(1).
DA DATE/YEAR: March 6, 1989.
SU SUBJECT: Oxford Computer - product development. Neural networks (Computers) - product development.

****

DOCUMENT 57
AU AUTHOR: Kramer, Matt.
TI TITLE: Is AI being used wisely in network management? (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V6. P59(1).
DA DATE/YEAR: July 10, 1989.

CF CARTRIDGE/FRAME NUMBER: 50H5956.
SU SUBJECT: Computer networks - Management. Artificial intelligence - usage. Expert systems (Computer science) - usage. Neural networks (Computers) - usage.

****

DOCUMENT 58
AU AUTHOR: Obermeier, Klaus K. Barron, Janet J.
TI TITLE: Time to get fired up. (neural-network simulations).
IL ILLUSTRATIONS: Illustration. Table.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P217(7).
DA DATE/YEAR: August, 1989.
SU SUBJECT: Artificial intelligence - usage. Neural networks (Computers) - research. Glossary.

****

DOCUMENT 59
AU AUTHOR: Morse, Kinglsey G. Jr.
TI TITLE: In an upscale world. (Neural networks; developing algorithms).
IL ILLUSTRATIONS: Illustration. Graph.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P222(2).
DA DATE/YEAR: August, 1989.
SU SUBJECT: Artificial intelligence - design and construction. Neural networks (Computers) - usage. Three standard measures of scalability.

****

DOCUMENT 60
AU AUTHOR: Touretzky, David S. Pomerleau, Dean A.
TI TITLE: What's hidden in the hidden layers? (Neural networks; geometrical problems).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P227(6).
DA DATE/YEAR: August, 1989.
SU SUBJECT: Neural networks (Computers) - usage. Artificial intelligence - usage. A network designed to solve the XOR problem. Lang and Witbrock's network for learning the two-spirals problem. The architecture of ALVINN (autonomous land vehicle in an neural network).

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DOCUMENT 61
AU AUTHOR: Waibel, Alex. Hampshire, John.
TI TITLE: Building blocks for speech. (Neural networks; voice recognition; includes bibliography/product directory).
IL ILLUSTRATIONS: Illustration. Chart. Table.
JN JOURNAL: Byte.
VO VOLUME/PAGES: V14. P235(6).
DA DATE/YEAR: August, 1989.
SU SUBJECT: Neural networks (Computers) - usage. Artificial intelligence - usage. The left side (in red) shows the time-delay

feature of the network. Modular construction of an all-consonant network. Neural networks: theory and practice.

****

DOCUMENT 62
AU AUTHOR: Pennisi, Elizabeth.
TI TITLE: Neurobiology gets computational. (neural-network computers as brain-function models; includes related article).
IL ILLUSTRATIONS: Illustration. Chart. Graph.
JN JOURNAL: BioScience.
VO VOLUME/PAGES: V39. P283(5).
DA DATE/YEAR: May, 1989.
SU SUBJECT: Neurology - Research. Neural networks (Computers) - usage. Brain - computer simulation. (Conventional information-processing vs. neural network models.). (Comparison of receptive fields and and neural network models.). (NETtalk learning functions.).

****

DOCUMENT 63
AU AUTHOR: Raloff, Janet. Amato, Ivan.
TI TITLE: Neural networks predict reactions. (report from the American Chemical Society's spring national meeting) (Chemistry).
JN JOURNAL: Science News.
VO VOLUME/PAGES: V135. P271(1).
DA DATE/YEAR: April 29, 1989.
CF CARTRIDGE/FRAME NUMBER: 49J0100.
SU SUBJECT: Artificial intelligence - scientific applications. Chemistry, Organic - Synthesis. Chemical reactions - analysis.

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DOCUMENT 64
AU AUTHOR: Fuqua, C.S.
TI TITLE: Neural networking. (advances in fiber optics) (includes related articles).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Ad Astra.
VO VOLUME/PAGES: V1. P8(6).
DA DATE/YEAR: April, 1989.
SU SUBJECT: Neural networks (Computers) - scientific applications. Fiber optics - technological innovations. Space vehicles - Control systems. Artificial intelligence - technological innovations. (Neural network navigation.).

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DOCUMENT 65
AU AUTHOR: Cook, Rick.
TI TITLE: Neural nets.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Analog Science Fiction-Science Fact.
VO VOLUME/PAGES: V109. P86(14).
DA DATE/YEAR: August, 1989.
CF CARTRIDGE/FRAME NUMBER: 50D1886.
SU SUBJECT: Neural networks (Computers) - research. Neural computers - research. An Exclusive-or Neural Net. A typical Neuron Net.

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DOCUMENT 66
AU AUTHOR: Jerome, Marty.
TI TITLE: Brain makers. (neural networking with BrainMaker and NeuralWorks Explorer) (product announcement).
JN JOURNAL: PC-Computing.
VO VOLUME/PAGES: V1. P70(1).
DA DATE/YEAR: Dec, 1988.
CF CARTRIDGE/FRAME NUMBER: 52K2149.
SU SUBJECT: Neural networks (Computers) - computer programs. BrainMaker (Computer program) - product introduction. NeuralWorks Explorer (Computer program) - product introduction. California Scientific Software - product introduction. NeuralWare Inc. - product introduction.

****
DOCUMENT 67
AU AUTHOR: Cowen, R.
TI TITLE: Snaring hidden explosives with a neural net. (thermal neutron activator).
JN JOURNAL: Science News.
VO VOLUME/PAGES: V136. P6(1).
DA DATE/YEAR: July 1, 1989.
CF CARTRIDGE/FRAME NUMBER: 50H0007.
SU SUBJECT: Bomb detectors - technological innovations. Neural networks (Computers) - technological innovations. Airlines - Baggage.

****
DOCUMENT 68
AU AUTHOR: Marbach, William D.
TI TITLE: Teaching neural networks to explain themselves. (Developments to Watch) (column).
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P69(1).
DA DATE/YEAR: July 24, 1989.
SU SUBJECT: Neural networks (Computers) - innovations. Computer software industry - product introduction. HNC Inc. - product introduction.

****
DOCUMENT 69
TI TITLE: Neural-network computers.
JN JOURNAL: The Futurist.
VO VOLUME/PAGES: V23. P56(1).
DA DATE/YEAR: Sept-Oct, 1989.
CF CARTRIDGE/FRAME NUMBER: 51E2441.
SU SUBJECT: Neural networks (Computers) - forecasts. Artificial intelligence - forecasts.

****
DOCUMENT 70
AU AUTHOR: Henderson, Breck W.
TI TITLE: JPL computer researchers develop hardware for neural networks. (Jet Propulsion Laboratory).

IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Aviation Week & Space Technology.
VO VOLUME/PAGES: V131. P129(2).
DA DATE/YEAR: Oct 9, 1989.
SU SUBJECT: United States. Jet Propulsion Laboratory - research. Neural networks (Computers) - research. Semiconductor chips - technological innovations.

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DOCUMENT 71
AU AUTHOR: Beardsley, Tim.
TI TITLE: Nets work; fast, smart neural architectures start to show their prowess.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V261. P79(2).
DA DATE/YEAR: Nov, 1989.
CF CARTRIDGE/FRAME NUMBER: 52C0700.
SU SUBJECT: Neural networks (Computers) - aeronautic use. Aeronautics - automation.

****

DOCUMENT 72
AU AUTHOR: Takefuji, Yoshiyasu. Lee, Kuo-Chun.
TI TITLE: A near-optimum parallel planarization algorithm.
IL ILLUSTRATIONS: Illustration. Chart. Table.
JN JOURNAL: Science.
VO VOLUME/PAGES: V245. P1221(3).
DA DATE/YEAR: Sept 15, 1989.
SU SUBJECT: Printed circuits - design and construction. Neural networks (Computers) - research. A graph with 4 vertices & 6 edges; a planar graph. Possible planar graphs based on the single-row routing representation. Violation conditions in the single-row representation. The simulation result. Nonplanar graph with 10 vertices & 22 edges; maximal planar subgraph. Convergence of the planarization neural network to a solution.

****

DOCUMENT 73
AU AUTHOR: Waters, Tom.
TI TITLE: Caught in the net. (neural network computers taught to detect bombs).
IL ILLUSTRATIONS: Illustration. Photograph.
JN JOURNAL: Discover.
VO VOLUME/PAGES: V10. P30(1).
DA DATE/YEAR: Nov, 1989.
SU SUBJECT: Shea, Patrick - technological innovations. Bomb detectors - technological innovations. Neural networks (Computers) - usage. Thermal neutrons - analysis.

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DOCUMENT 74
AU AUTHOR: Robinson, Gail M.
TI TITLE: Neural networks go to market: neurocomputers, software, and training programs help break ground for neural networks, but the verdict is still out on this new technology.

IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Design News.
VO VOLUME/PAGES: V44. P18(3).
DA DATE/YEAR: Feb 1, 1988.
CF CARTRIDGE/FRAME NUMBER: 43C6366.
SU SUBJECT: Neural circuitry - research. Computer software industry - technological innovations. Biological neuron model connection between two neurons. Electronic neural network.

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DOCUMENT 75
AU AUTHOR: Allman, William F. Goode, Erica E.
TI TITLE: How the brain really works its wonders. (includes related article Accounting for Emotion).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: U.S. News & World Report.
VO VOLUME/PAGES: V104. P48(6).
DA DATE/YEAR: June 27, 1988.
CF CARTRIDGE/FRAME NUMBER: 45E0517.
SU SUBJECT: Memory - research. Thought and thinking - research. Brain - Models. Emotions - research. (Sense of smell pathway to the brain.). (Neural networks.). (Visual perception charts.). The mind misconstrued, through history.

****

DOCUMENT 76
AU AUTHOR: Bower, Bruce.
TI TITLE: Neural networks set sights on visual processing in brain.
JN JOURNAL: Science News.
VO VOLUME/PAGES: V133. P149(1).
DA DATE/YEAR: March 5, 1988.
CF CARTRIDGE/FRAME NUMBER: 43K0006.
SU SUBJECT: Neural networks (Computers) - research. Brain - Models.

****

DOCUMENT 77
TI TITLE: Army funds neural-net research. (Newsletter Digest).
JN JOURNAL: High Technology Business.
VO VOLUME/PAGES: V8. P68(2).
DA DATE/YEAR: July, 1988.
SU SUBJECT: Neural networks (Computers) - research. United States. Army - contracts and specifications. Hecht-Nielsen Neurocomputers - research.

****

DOCUMENT 78
AU AUTHOR: Gorman, Christine.
TI TITLE: Putting brainpower in a box; neural networks could change the way computers work.
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: Time.
VO VOLUME/PAGES: V132. P59(1).
DA DATE/YEAR: Aug 8, 1988.
CF CARTRIDGE/FRAME NUMBER: 45L0548.
SU SUBJECT: Neural networks (Computers) - research. Neural circuitry

- computer simulation. Artificial intelligence - research. Learning through mistakes.

****

DOCUMENT 79
AU AUTHOR: Bluestone, Mimi.
TI TITLE: Why computer scientists are eavesdropping on whales. (neural networks).
JN JOURNAL: Business Week.
VO VOLUME/PAGES: P53(1).
DA DATE/YEAR: Aug 8, 1988.
SU SUBJECT: Neural networks (Computers) - research. Killer whale - communication. General Dynamics Corp. - research.

****

DOCUMENT 80
AU AUTHOR: Bower, Bruce.
TI TITLE: Neural networks: the buck stops here. (use of neurocomputers in financial decision-making).
JN JOURNAL: Science News.
VO VOLUME/PAGES: V134. P85(1).
DA DATE/YEAR: Aug 6, 1988.
CF CARTRIDGE/FRAME NUMBER: 46A0006.
SU SUBJECT: Neural computers - business applications. Neural networks (Computers) - business applications. Finance - data processing.

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DOCUMENT 81
AU AUTHOR: Bower, Bruce.
TI TITLE: High society on the brain. (neural network research).
JN JOURNAL: Science News.
VO VOLUME/PAGES: V134. P92(1).
DA DATE/YEAR: Aug 6, 1988.
CF CARTRIDGE/FRAME NUMBER: 46A0013.
SU SUBJECT: Minsky, Marvin - research. Neural networks (Computers) - research.

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DOCUMENT 82
AU AUTHOR: Bower, Bruce.
TI TITLE: Backing up 'back prop.' (back propagation in neural networks).
JN JOURNAL: Science News.
VO VOLUME/PAGES: V134. P92(1).
DA DATE/YEAR: Aug 6, 1988.
CF CARTRIDGE/FRAME NUMBER: 46A0013.
SU SUBJECT: Neural circuitry - research. Neural networks (Computers) - research.

****

DOCUMENT 83
AU AUTHOR: Allman, William F.
TI TITLE: The computer with many heads; parallel processors tackle the computing speed barrier. (using the human brain as a pattern).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.

JN JOURNAL: U.S. News & World Report.
VO VOLUME/PAGES: V104. P58(3).
DA DATE/YEAR: May 2, 1988.
CF CARTRIDGE/FRAME NUMBER: 44F1135.
SU SUBJECT: Multiprocessors - product development. Parallel processing (Electronic computers) - product development. Neural networks (Computers) - product development. (Dividing the work: conventional computers, parallel processors.).

****

DOCUMENT 84
AU AUTHOR: Bleecker, Samuel E.
TI TITLE: The Bio-Logic age: the merging of man and machine. (column).
JN JOURNAL: Futurist.
VO VOLUME/PAGES: V22. P60(1).
DA DATE/YEAR: May-June, 1988.
CF CARTRIDGE/FRAME NUMBER: 44F2508.
SU SUBJECT: Artificial intelligence - forecasts. Technological innovations - forecasts. Neural networks (Computers) - forecasts.

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DOCUMENT 85
AU AUTHOR: Kinoshita, June.
TI TITLE: Neural networks at work; they watch over factories, credit applicants, sleepy pilots.
JN JOURNAL: Scientific American.
VO VOLUME/PAGES: V259. P134(2).
DA DATE/YEAR: Nov, 1988.
CF CARTRIDGE/FRAME NUMBER: 46K1333.
SU SUBJECT: Neural networks (Computers) - industrial applications. Decision support systems - product development. Global Holonetics Corporation Inc. - product development. Adaptive Decision Systems - product development. BehavHeuristics Inc. - product development.

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DOCUMENT 86
AU AUTHOR: Manuel, Tom.
TI TITLE: Are artificial neural networks finally ready for market? (includes related article).
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Electronics.
VO VOLUME/PAGES: V61. P85(4).
DA DATE/YEAR: Aug, 1988.
SU SUBJECT: Neural computers - industrial applications. Neural networks (Computers) - product development. Artificial intelligence - research. Computer industry - research. Mimicking the neuron. Simple neural network. A way to make 'smart' memory.

****

DOCUMENT 87
AU AUTHOR: Applegate, Lynda M. Cash, James I., Jr. Mills, D. Quinn.
TI TITLE: Information technology and tomorrow's manager. (also includes related articles on current organizational structure and a conversation with Harold J. Leavitt and Thomas L. Whisler).
JN JOURNAL: Harvard Business Review.

VO VOLUME/PAGES: V66. P128(9).
DA DATE/YEAR: Nov-Dec, 1988.
CF CARTRIDGE/FRAME NUMBER: 47C4477.
SU SUBJECT: Organizational change - analysis. Information technology - analysis. Decentralization in management - analysis. Work design - innovations. High technology - innovations. Neural networks (Computers) - innovations. Industrial relations - analysis. Leavitt, Harold J. - interviews. Whisler, Thomas L. - interviews.

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DOCUMENT 88
AU AUTHOR: Nordwall, Bruce D.
TI TITLE: Industry, defense pursue development of learning, adaptive neurocomputers.
IL ILLUSTRATIONS: Illustration. Photograph. Chart.
JN JOURNAL: Aviation Week & Space Technology.
VO VOLUME/PAGES: V129. P101(2).
DA DATE/YEAR: Nov 14, 1988.
SU SUBJECT: Neural networks (Computers) - military use. Military art and science - Automation. Hecht-Nielsen Neurocomputer Corp. - product development. (Neural networks consist of a large number of processing elements.).

****

DOCUMENT 89
AU AUTHOR: Sussman, Ann.
TI TITLE: AI-based neural networks play role in mortgage process.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P17(1).
DA DATE/YEAR: July 18, 1988.
CF CARTRIDGE/FRAME NUMBER: 45J6162.
SU SUBJECT: Neural networks (Computers) - usage. Artificial intelligence - product development. Nestor Inc. - computer programs.

****

DOCUMENT 90
AU AUTHOR: Sussman, Ann.
TI TITLE: Neural networking conference shows commercial uses. (IEEE's second annual International Conference on Neural Networking).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P8(1).
DA DATE/YEAR: Aug 1, 1988.
CF CARTRIDGE/FRAME NUMBER: 45L6068.
SU SUBJECT: Neural networks (Computers) - conferences and congresses. International Conference on Neural Networking - 1988.

****

DOCUMENT 91
AU AUTHOR: Ray, Garry.
TI TITLE: Release notes. (artificial intelligence) (column).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P49(1).
DA DATE/YEAR: Aug 22, 1988.
CF CARTRIDGE/FRAME NUMBER: 46B6313.

SU SUBJECT: Artificial intelligence - business applications. Computer software industry - product development. Neural networks (Computers) - product development. Expert systems (Computer science) - product development.

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DOCUMENT 92
AU AUTHOR: Ray, Gary.
TI TITLE: Release notes.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P86(1).
DA DATE/YEAR: Sept 5, 1988.
CF CARTRIDGE/FRAME NUMBER: 46E6119.
SU SUBJECT: Neural networks (Computers) - history. Neural computers - usage. Computer industry - research.

****

DOCUMENT 93
AU AUTHOR: Sussman, Ann.
TI TITLE: Neural-network technology attracts venture capitalists.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V5. P137(1).
DA DATE/YEAR: Sept 12, 1988.
CF CARTRIDGE/FRAME NUMBER: 46F6304.
SU SUBJECT: Neural networks (Computers) - investment activities.

****

DOCUMENT 94
AU AUTHOR: Stoll, Marilyn.
TI TITLE: Neural networks bring pattern recognition to PC. (includes related article on neurocomputers).
IL ILLUSTRATIONS: Illustration. Chart.
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V4. P8(1).
DA DATE/YEAR: June 23, 1987.
CF CARTRIDGE/FRAME NUMBER: 40B6091.
SU SUBJECT: Pattern recognition systems - technological innovations. Neural circuitry - simulation methods. Expert systems (Computer science) - technological innovations. Robotics - technological innovations. Nestor Inc. - product development. Neural networks simulate human pattern-recognition processes.

****

DOCUMENT 95
AU AUTHOR: Hartley, Karen.
TI TITLE: Seeing the need for 'art': a new generation of 'self-teaching' computers represents another step in neural networks.
JN JOURNAL: Science News.
VO VOLUME/PAGES: V132. P14(1).
DA DATE/YEAR: July 4, 1987.
CF CARTRIDGE/FRAME NUMBER: 40E0577.
SU SUBJECT: Computer architecture - research. Artificial intelligence - research.

****

DOCUMENT 96
AU AUTHOR: Stoll, Marilyn.
TI TITLE: With neural networks, the capabilities of PCs will be enhanced dramatically. (expert systems software).
JN JOURNAL: PC Week.
VO VOLUME/PAGES: V4. P120(1).
DA DATE/YEAR: Aug 11, 1987.
CF CARTRIDGE/FRAME NUMBER: 40H6068.
SU SUBJECT: Neural circuitry - simulation methods. Expert systems (Computer science) - technological innovations. Artificial intelligence - computer programs. Computer software industry - product development.

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DOCUMENT 97
TI TITLE: Research into neural networks of the brain could advance associative memory for computers.
JN JOURNAL: Research & Development.
VO VOLUME/PAGES: V28. P50(2).
DA DATE/YEAR: Feb, 1986.
CF CARTRIDGE/FRAME NUMBER: 32H1864.
SU SUBJECT: Hopfield, John - research. Neural circuitry - research. Neural conduction - industrial applications. Computer storage devices - physiological aspects. Semiconductor storage devices - research.

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DOCUMENT 98
AU AUTHOR: Hoy, Ronald R.
TI TITLE: Model neural networks and behavior. - (book reviews).
JN JOURNAL: Science.
VO VOLUME/PAGES: V232. P272(1).
DA DATE/YEAR: April 11, 1986.
SU SUBJECT: Selverston, Allen I. Books - reviews, etc.

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ENCLOSURE 3

SAMPLE INTERVIEW CHECKLIST

SAMPLE INTERVIEW CHECKLIST
FOR
TELEPHONE SURVEY OF INFORMATION CENTERS

SITE_____

IC SERVICE	PRINT/ PUB	VI	BM	COMMO	AUTO	H/W	S/W
Applications development							
Applications development library							
Applications problem resolution							
Classroom training							
Computer Based Instruction							
Cost Benefit Analysis							
Custom Programming							
Data Administration							
Data Dictionary Managment							
Demonstations (staff/vendor)							
Desktop Publishing Support							
Disaster Recovery							
Documentation							
Electronic Mail Support							
Equipment Repair/Maintenance							
Expositions							
Film series							
Graphics Production							
Group Purchases							
Handicapped Employee Assistance							
Equipment/Systems/Software Acquisition							
Configuration							
Evaluation							
Production support							
Installation							
Justification assistance							
Policy Guidelines/Standards							
Problem Diagnosis							
Procurement Processing							
Procurement review/approval							
Specifications							
Testing/Evaluation							

IC SERVICE	PRINT/ PUB	VI	BM	COMM	AUTO	H/W	S/W
Help line, Help Desk, Hot Line							
Inventory Management							
Linkage to data bases							
Loaner Equipment							
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition							
Newsletter							
Office automation planning							
One-on-one Training							
On-going applications support							
Public Domain Software							
Resource Groups/Persons							
Seminars							
System Design							
Technical Library							
Technology update/briefing							
Time Sharing Support							
User Group							
User's Guide							
Video Tapes							
Vendor Display Area							
Vendor Liaison							

ENCLOSURE 4

COMPLETED INTERVIEW CHECKLIST

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 1

IC SERVICE	PRINT/ PUB	VI	BN	COMMO	AUTO	M/W	S/W
Applications development					✓		
Applications development library					✓		
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction					✓		
Cost Benefit Analysis					✓		
Custom Programming					✓		
Data Administration					—		
Data Dictionary Managment					—		
Demonstations (staff/vendor)					✓		
Desktop Publishing Support							
Disaster Recovery					✓		
Documentation							
Electronic Mail Support					✓		
Equipment Repair/Maintenance					✓		
Expositions					✓		
Film series							
Graphics Production		✓			✓		
Group Purchases							
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition					✓		
Configuration					✓		
Evaluation							
Production support					✓		
Installation							
Justification assistance					✓		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing					✓		
Procurement review/approval					—		
Specifications					✓		
Testing/Evaluation					—		

- OTHER BRANCHES UNDER DOIM PERFORM VARIOUS FUNCTIONS NORMALLY FOUND IN IC
  - PLANS BRANCH - PERFORMS COST BENEFIT ANALYSIS, CONFIGURATION ASSISTANCE
  - EXECUTIVE SOFTWARE BRANCH - WORKS WITH OPERATING SYSTEMS PROBLEMS SETS POLICIES FOR BACKUPS, SYSTEMS RECOVERY
  - INFORMATION SYSTEMS SECURITY OFFICE - DOES COOP PLANNING; WORK WITH HQ SECURITY BRANCH TO DEVELOP PLAN. IC IS INVOLVED FROM ADVISORY STANDPOINT.
  - LOGISTICS BRANCH - MAINTAINS PROPERTY INVENTORY, LOANER EQUIPMENT. IC PERFORMS SYSTEM WORK AS REQUIRED ON LOANER EQUIPMENT.

IC SERVICE	PRINT/ PUB	VI	RM	COMMO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management					—		
Linkage to data bases					—		
Loaner Equipment					—		
Monitor access to corporate data					—		
Down load data for manipulation on micro					—		
Needs analysis/user requirements definition					—		
Newsletter					—		
Office automation planning					✓		
One-on-one Training					✓		
On-going applications support					✓		
Public Domain Software					✓		
Resource Groups/Persons					✓		
Seminars					✓		
System Design					✓		
Technical Library					✓		
Technology update/briefing					✓		
Time Sharing Support					✓		
User Group					✓		
User's Guide					✓		
Video Tapes					—		
Vendor Display Area					✓		
Vendor Liaison					✓		

- APPLICATIONS BRANCH - WRITES APPLICATIONS AND DEVELOPS DATA BASE MANAGEMENT SYSTEMS.

- INFORMATION CENTER
  - FUNCTIONS AS A QUICK REACTION TEAM; PERFORMS QUICK/SHORT TIME FUSED PROJECTS
  - HANDLES ALL HARDWARE CALLS INITIALLY. WILL REPAIR IF THEY CAN, OTHERWISE CALL CONTRACTOR TO REPAIR
  - DOES NO FUNCTIONAL APPLICATIONS DEVELOPMENT BUT DOES DEVELOP UTILITIES USING UNIX SHELLS OR BASIC DEVELOPMENT
  - HAS DEVELOPED ITS OWN WRITTEN CURRICULUM FOR TRAINING IN SUPPORTED SOFTWARE PACKAGES.
  - DID PROVIDE NEWSLETTER HOWEVER CUT IN PERSONNEL CAUSED THIS SERVICE TO BE TERMINATED.
  - SPONSORS 2 USER GROUPS; ONE FOR AOP POCs IN FUNCTIONAL AREAS WHICH WORKS ON A TECHNICAL LEVEL. SECOND IS HQ AOP USERS GROUP FOR NON-TECHNICAL PERSONNEL. USED MAINLY AS A TRAINING TOOL.

- HQs OPERATES 2 DOS BASED-LANS.

LESSONS LEARNED / TIPS:

- CALL TRACKING - EVERY CALL IS LOGGED INTO A DATA BASE.
- HELP DESK RECEPTIONIST - RECEPTIONIST MAINTAINS CALL TRACKING DATA BASE, GREETS CUSTOMERS, LEAVES TECHNICAL WORK TO TECHNICIANS
- CHOOSING PEOPLE - SELECT PEOPLE WHO WILL WORK WITH OTHER PEOPLE.
- CONTRACTORS - CONTRACTORS should be hired only to REPAIR HARDWARE. A WASTE of government money for government employees TO WORK ON HARDWARE.
- EDUCATION - IC must be used for EDUCATIONAL PURPOSES. FORMAL TRAINING of IC employees is NECESSARY. Have AT LEAST ONE EXPERT on ALL SUPPORTED SOFTWARE PACKAGES.
- DEMONSTRATION AREA - The IC should have a demo AREA WITH 5 TO 6 PCs. MAKE THIS AREA AVAILABLE for COMMON USE.
- DBMS - ICs NEED A STANDARD - 'ACROSS THE BOARD' - data BASE MANAGEMENT SYSTEM.

Aug 13, 1991

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 2

IC SERVICE	PRINT/ PUB	VI	IBM	COMM	AUTO	M/M	S/M
Applications development							
Applications development library							
Applications problem resolution							
Classroom training							
Computer Based Instruction							
Cost Benefit Analysis							
Custom Programming							
Data Administration							
Data Dictionary Managment							
Demonstations (staff/vendor)					✓		
Desktop Publishing Support							
Disaster Recovery							
Documentation							
Electronic Mail Support							
Equipment Repair/Maintenance							
Expositions					✓		
Film series							
Graphics Production							
Group Purchases							
Handicapped Employee Assistance							
Equipment/Systems/Software Acquisition							
Configuration							
Evaluation							
Production support							
Installation							
Justification assistance							
Policy Guidelines/Standards					✓		
Problem Diagnosis							
Procurement Processing							
Procurement review/approval							
Specifications					✓		
Testing/Evaluation							

- DOES NOT PROVIDE HELP DESK SERVICE TO END USERS. SET-UP & AN IC FOR ICs WITHIN COMMAND. HAS OVERSIGHT of 15 ICs.
- DEVELOPS REGULATIONS, POLICIES, STANDARDS AND GUIDELINES for INFORMATION MANAGEMENT (SOFTWARE)
- WORKS ONLY WITH SOFTWARE ISSUES. HARDWARE ISSUES ARE HANDLED BY ANOTHER GROUP
- IS A MEMBER OF A NUMBER of USER GROUPS

IC SERVICE	PRINT/ PUB	VI	BM	COMBO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line							
Inventory Management							
Linkage to data bases							
Loaner Equipment							
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition							
Newsletter					✓		
Office automation planning							
One-on-one Training							
On-going applications support							
Public Domain Software							
Resource Groups/Persons							
Seminars							
System Design							
Technical Library					✓		
Technology update/briefing							
Time Sharing Support							
User Group					✓		
User's Guide							
Video Tapes							
Vendor Display Area					✓		
Vendor Liaison					✓		

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 3

IC SERVICE	PRINT/ PUB	VI	MM	COMM	AUTO	H/W	S/W
Applications development	✓	✓	✓		✓		
Applications development library	✓	✓	✓		✓		
Applications problem resolution							
Classroom training	✓	✓	✓		✓		
Computer Based Instruction	✓	✓	✓		✓		
Cost Benefit Analysis	✓	✓	✓		✓		
Custom Programming		✓			✓		
Data Administration							
Data Dictionary Management							
Demonstations (staff/vendor)	✓	✓	✓		✓		
Desktop Publishing Support	✓				✓		
Disaster Recovery							
Documentation							
Electronic Mail Support					✓		
Equipment Repair/Maintenance	✓	✓	✓		✓		
Expositions	✓	✓	✓		✓		
Film series							
Graphics Production							
Group Purchases							
Handicapped Employee Assistance	✓	✓	✓		✓		
Equipment/Systems/Software Acquisition							
Configuration	✓	✓	✓		✓		
Evaluation	✓	✓	✓		✓		
Production support							
Installation	✓	✓	✓		✓		
Justification assistance							
Policy Guidelines/Standards							
Problem Diagnosis							
Procurement Processing							
Procurement review/approval	✓	✓	✓		✓		
Specifications	✓	✓	✓		✓		
Testing/Evaluation							

- Performs as single POC for all 5 IMA disciplines through customer assistance branch. All paperwork such as requests, approvals and specifications for IMA services goes through customer assistance.
- Performs troubleshooting to identify the type of problem (hardware or software) then calls in vendor to repair item.
- Have established standard set of software

IC SERVICE	PRINT/ PUB	VI	BM	COMM	AUTO	H/W	S/W
Help line, Help Desk, Hot Line	✓	✓	✓	✓	✓		
Inventory Management							
Linkage to data bases					✓		
Loaner Equipment		✓			✓		
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition	✓	✓	✓		✓		
Newsletter							
Office automation planning					✓		
One-on-one Training							
On-going applications support							
Public Domain Software	✓	✓	✓		✓		
Resource Groups/Persons	✓	✓	✓		✓		
Seminars							
System Design							
Technical Library	✓	✓	✓		✓		
Technology update/briefing	✓	✓	✓		✓		
Time Sharing Support							
User Group	✓	✓	✓		✓		
User's Guide							
Video Tapes							
Vendor Display Area	✓	✓	✓		✓		
Vendor Liaison	✓	✓	✓		✓		

- ACTUAL TELEPHONE REPAIR/INSTALLATION done by communications group. Requests go through IC.
- currently have someone looking for HELP DESK SOFTWARE.

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 4

IC SERVICE	PRINT/PUB	VI	BM	COMBO	AUTO	B/W	S/W
Applications development							
Applications development library							
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction							
Cost Benefit Analysis					✓		
Custom Programming							
Data Administration					✓		
Data Dictionary Management					✓		
Demonstations (staff/vendor)					✓		
Desktop Publishing Support					✓		
Disaster Recovery							
Documentation							
Electronic Mail Support					✓		
Equipment Repair/Maintenance					✓ contract		
Expositions					✓		
Film series							
Graphics Production							
Group Purchases					✓		
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition					✓		
Configuration					✓		
Evaluation					✓		
Production support							
Installation					✓		
Justification assistance					✓		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing							
Procurement review/approval					✓		
Specifications					✓		
Testing/Evaluation					✓		

- ONLY PROVIDE ASSISTANCE IN AUTOMATION
- DOING OFFICE HANDLES OTHER DISCIPLINES. ANOTHER BRANCH HANDLES APPLICATION DEVELOPMENT, TRAINING, ETC.
- HEAVILY INVOLVED IN OFFICE AUTOMATION PLANNING
- PROVIDES INFO TO USERS VIA BULLETIN BOARD
- SERVES APPROXIMATELY 2500 CUSTOMERS WITH 19 PEOPLE

IC SERVICE	PRINT/ PUB	VI	BN	COMM	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management							
Linkage to data bases							
Loaner Equipment					✓		
Monitor access to corporate data					✓		
Down load data for manipulation on micro					✓		
Needs analysis/user requirements definition					✓		
Newsletter							
Office automation planning					✓		
One-on-one Training					✓		
On-going applications support					✓		
Public Domain Software							
Resource Groups/Persons					✓		
Seminars					✓		
System Design					✓		
Technical Library					✓		
Technology update/briefing					✓		
Time Sharing Support					✓		
User Group							
User's Guide					✓		
Video Tapes							
Vendor Display Area					✓		
Vendor Liaison					✓		

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TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 5

IC SERVICE	PRINT/PUB	VI	IBM	COMMO	AUTO	H/W	S/W
Applications development					—		
Applications development library					✓		
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction					—		
Cost Benefit Analysis					—		
Custom Programming					—		
Data Administration					—		
Data Dictionary Management					—		
Demonstations (staff/vendor)					✓		
Desktop Publishing Support					✓		
Disaster Recovery					—		
Documentation					—		
Electronic Mail Support					—		
Equipment Repair/Maintenance					—		
Expositions					—		
Film series					—		
Graphics Production					✓		
Group Purchases					✓		
Handicapped Employee Assistance					—		
Equipment/Systems/Software Acquisition					✓		
Configuration					—		
Evaluation					✓		
Production support					✓		
Installation					✓		
Justification assistance					—		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing					✓		
Procurement review/approval					✓		
Specifications					—		
Testing/Evaluation					—		

- IC SERVICES AUTOMATION DISCIPLINE ONLY, SOFTWARE SPECIFICALLY. HARDWARE IS SERVICED BY ANOTHER DIVISION. THE IC, HOWEVER, IS THE FIRST STOP FOR PROBLEM RESOLUTION.
- NOT AN INSTALLATION DOIM IC.
- MAJOR THRUST OF SUPPORT IS TOWARD OFFICE AUTOMATION AND COMMERCIAL OFF THE SHELF SOFTWARE.
- JUST STARTING A HELP DESK. ARE DEVELOPING A SET OF PROGRAMS TO RUN THE HELP DESK

IC SERVICE	PRINT/ PUB	VI	BM	COMMO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management					✓		
Linkage to data bases					–		
Loaner Equipment					–		
Monitor access to corporate data					–		
Down load data for manipulation on micro					–		
Needs analysis/user requirements definition					–		
Newsletter					✓		
Office automation planning					✓		
One-on-one Training					✓		
On-going applications support					–		
Public Domain Software					✓		
Resource Groups/Persons					–		
Seminars					–		
System Design					–		
Technical Library					–		
Technology update/briefing					✓		
Time Sharing Support					–		
User Group					✓		
User's Guide					–		
Video Tapes					–		
Vendor Display Area					✓		
Vendor Liaison					✓		

- Purchase mainly from STANDARD REQUIREMENTS CONTRACTS; purchase SITE LICENSES AS NECESSARY.
- SERVE AS AN INVENTORY CLEARINGHOUSE; TRACKS WHAT IS PURCHASED; AID IN PURCHASE APPROVAL CHAIN. BIGGEST ISSUE IS USE OF UNAUTHORIZED SOFTWARE. CURRENT PROJECT IS TO GET RID OF IT OR GET IT ON THE BOOKS.

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 6

IC SERVICE	PRINT/ PUB	VI	BM	COMO	AUTO	B/W	S/W
Applications development							
Applications development library					✓		
Applications problem resolution					✓		
Classroom training	✓	✓	✓		✓		
Computer Based Instruction	✓	✓	✓		✓		
Cost Benefit Analysis	✓	✓	✓		✓		
Custom Programming							
Data Administration							
Data Dictionary Managment							
Demonstations (staff/vendor)	✓	✓	✓		✓		
Desktop Publishing Support	✓	✓	✓		✓		
Disaster Recovery							
Documentation							
Electronic Mail Support					✓		
Equipment Repair/Maintenance	✓	✓	✓		✓		
Expositions							
Film series	✓	✓	✓		✓		
Graphics Production	✓	✓	✓		✓		
Group Purchases							
Handicapped Employee Assistance							
Equipment/Systems/Software Acquisition	✓	✓	✓		✓		
Configuration	✓	✓	✓		✓		
Evaluation	✓	✓	✓		✓		
Production support							
Installation	✓	✓	✓		✓		
Justification assistance	✓	✓	✓		✓		
Policy Guidelines/Standards	✓	✓	✓		✓		
Problem Diagnosis	✓	✓	✓		✓		
Procurement Processing	✓	✓	✓		✓		
Procurement review/approval	✓	✓	✓		✓		
Specifications	✓	✓	✓		✓		
Testing/Evaluation	✓	✓	✓		✓		

- DOES NOT HAVE A FORMAL IC SET UP due TO PERSONNEL SHORTAGES. THE IC MANAGER PERFORMS AS A TECHNICIAN AS WELL AS A MANAGER
- DOES COVER ALL DISCIPLINES WITH EXCEPTION of COMMUNICATIONS. They do WORK WITH COMPUTER COMMUNICATIONS but NOT TELEPHONE EQUIPMENT.
- DOES NOT HAVE A HOT LINE OR HELP DESK DESIGNATED.

IC SERVICE	PRINT/ PUB	VI	IBM	COMMO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line							
Inventory Management	✓	✓	✓		✓		
Linkage to data bases							
Loaner Equipment							
Monitor access to corporate data							
Down load data for manipulation on micro	✓	✓	✓		✓		
Needs analysis/user requirements definition	✓	✓	✓		✓		
Newsletter	✓	✓	✓		✓		
Office automation planning	✓	✓	✓		✓		
One-on-one Training	✓	✓	✓		✓		
On-going applications support							
Public Domain Software							
Resource Groups/Persons	✓	✓	✓		✓		
Seminars							
System Design	✓	✓	✓		✓		
Technical Library							
Technology update/briefing	✓	✓	✓		✓		
Time Sharing Support							
User Group							
User's Guide							
Video Tapes							
Vendor Display Area	✓	✓	✓		✓		
Vendor Liaison	✓	✓	✓		✓		

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 7

IC SERVICE	PRINT/ PUB	VI	MN	COMM	AUTO	M/M	S/M
Applications development	✓	✓	✓	✓	✓		
Applications development library	✓	✓	✓	✓	✓		
Applications problem resolution	✓	✓	✓	✓	✓		
Classroom training		✓		✓	✓		
Computer Based Instruction					✓		
Cost Benefit Analysis		✓			✓		
Custom Programming					✓		
Data Administration							
Data Dictionary Management							
Demonstations (staff/vendor)	✓	✓			✓		
Desktop Publishing Support	✓	✓			✓		
Disaster Recovery							
Documentation					✓		
Electronic Mail Support					✓		
Equipment Repair/Maintenance							
Expositions							
Film series				✓	✓		
Graphics Production	✓	✓					
Group Purchases					✓		
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition		✓			✓		
Configuration	✓	✓			✓		
Evaluation		✓			✓		
Production support							
Installation				✓	✓		
Justification assistance					✓		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing		✓			✓		
Procurement review/approval		✓			✓		
Specifications					✓		
Testing/Evaluation					✓		

NOTES:

- INFORMATION MANAGEMENT AND OPERATIONS (IMO) PERFORMS MAINFRAME HARDWARE SUPPORT. IMO HAS ITS OWN IC. IMO ALSO SUPPORTS TELEPHONE (NOT PART of IC)
- INFORMATION MANAGEMENT DIVISION (IMD) PERFORMS SOFTWARE DEVELOPMENT FOR USERS. (NOT PART of IC)
- IC IS INVOLVED IN ALL IMA DISCIPLINES TO A LIMITED EXTENT - HEAVILY INVOLVED IN AUTOMATION AND VI (VI DUE TO IC CHIEF'S EXPERIENCE IN GRAPHICS. COMMO INVOLVEMENT DEALS MAINLY WITH MODEMS ON PCs.

ENCL 3

IC SERVICE	PRINT/ PUB	VI	BM	COMBO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line	✓	✓			✓		
Inventory Management		✓			✓		
Linkage to data bases					✓		
Loaner Equipment		✓			✓		
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition							
Newsletter	✓	✓			✓		
Office automation planning		✓			✓		
One-on-one Training							
On-going applications support							
Public Domain Software							
Resource Groups/Persons					✓		
Seminars					✓		
System Design					✓		
Technical Library	✓	✓			✓		
Technology update/briefing	✓	✓			✓		
Time Sharing Support							
User Group					✓		
User's Guide							
Video Tapes		✓			✓		
Vendor Display Area					✓		
Vendor Liaison							

- IC HEAVILY INVOLVED IN PROCUREMENT PROCESSING. HAVE CREATED A DATABASE TO TRACK PROCUREMENTS. ESTABLISHED STANDARDS, REVIEW PROCUREMENTS for COMPLIANCE
- HAVE "SUPER USERS" /IMA POC IN FUNCTIONAL DIRECORATES.
- CURRENTLY WORKING ON PLAN TO MOVE from JUST Office AUTOMATION TO INFORMATION TECHNOLOGIES WHICH WILL COVER THE FULL SCOPE of IMA DISCIPLINES
- TECHNOLOGY IN USE AT SITE
  - SCANNERS
  - LOCALLY DEVELOPED SOFTWARE TO MANAGE INVENTORY AND TRACK PROCUREMENT

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 8

IC SERVICE	PRINT/PUB	VI	IBM	COBOL	AUTO	E/M	S/M
Applications development					✓		
Applications development library					✓		
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction					✓		
Cost Benefit Analysis					✓		
Custom Programming					✓		
Data Administration							
Data Dictionary Management							
Demonstations (staff/vendor)					✓		
Desktop Publishing Support	✓				✓		
Disaster Recovery					✓		
Documentation					✓		
Electronic Mail Support					✓		Plots Pac
Equipment Repair/Maintenance					✓		
Expositions							
File series							
Graphics Production		✓			✓		
Group Purchases							
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition					✓		
Configuration					✓		
Evaluation					✓		
Production support							
Installation					✓		
Justification assistance					✓		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing							
Procurement review/approval							
Specifications							
Testing/Evaluation					✓		

- IC ORIENTED TOWARDS AUTOMATION
- PERFORM SOME MAINTENANCE BUT HAVE A CONTRACTOR FOR REMAINDER
- DEVELOPING THEIR OWN HELP DESK EXPERT SYSTEM. NEED AN ES TO HELP WITH TROUBLE SHOOTING.
- IC BEING AFFECTED BY REORGANIZATION. WILL BE SPLIT AND REORGANIZED WITHIN A MONTH.

IC SERVICE	PRINT/ PUB	VI	BM	COMM	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management							
Linkage to data bases							
Loaner Equipment					✓		
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition							
Newsletter					✓		
Office automation planning					✓		
One-on-one Training					✓		
On-going applications support							
Public Domain Software					✓		
Resource Groups/Persons							
Seminars							
System Design					✓		
Technical Library					✓		
Technology update/briefing					✓		
Time Sharing Support							
User Group							
User's Guide					✓		
Video Tapes							
Vendor Display Area							
Vendor Liaison					✓		

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 9

IC SERVICE	PRINT/ PUB	VI	BM	COMM	AUTO	M/M	S/M
Applications development							
Applications development library							
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction					✓		
Cost Benefit Analysis							
Custom Programming					✓		
Data Administration							
Data Dictionary Managment							
Demonstations (staff/vendor)					✓		
Desktop Publishing Support							
Disaster Recovery							
Documentation							
Electronic Mail Support					✓		
Equipment Repair/Maintenance					✓		
Expositions					✓		
Film series					✓		
Graphics Production					✓		
Group Purchases							
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition							
Configuration					✓		
Evaluation					✓		
Production support							
Installation					✓		
Justification assistance							
Policy Guidelines/Standards					✓		
Problem Diagnosis							
Procurement Processing							
Procurement review/approval							
Specifications					✓		
Testing/Evaluation					✓		

- PROVIDE SUPPORT TO PC/MAINFRAME/MINI
- SUPPORT AUTOMATION ONLY
- ARE LOOKING AT PERFORMANCE SOFTWARE TO SUPPORT HELP DESK
- MAINTENANCE PERFORMED BY CONTRACTOR. IC COORDINATES REPAIR

IC SERVICE	PRINT/ PUB	VI	BH	COMMO	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management							
Linkage to data bases							
Loaner Equipment					✓		
Monitor access to corporate data							
Down load data for manipulation on micro							
Needs analysis/user requirements definition							
Newsletter							
Office automation planning							
One-on-one Training					✓		
On-going applications support							
Public Domain Software					✓		
Resource Groups/Persons		✓			✓		
Seminars					✓		
System Design							
Technical Library							
Technology update/briefing					✓		
Time Sharing Support							
User Group					✓		
User's Guide					✓		
Video Tapes					✓		
Vendor Display Area					✓		
Vendor Liaison					✓		

TELEPHONE SURVEY OF INFORMATION CENTERS

SITE 10

IC SERVICE	PRINT/ PUB	VI	RM	COMMO	AUTO	H/W	S/W
Applications development							
Applications development library					✓		
Applications problem resolution					✓		
Classroom training					✓		
Computer Based Instruction					✓		
Cost Benefit Analysis					✓		
Custom Programming							
Data Administration							
Data Dictionary Managment							
Demonstations (staff/vendor)					✓		
Desktop Publishing Support					✓		
Disaster Recovery					✓		
Documentation					✓		
Electronic Mail Support					✓		
Equipment Repair/Maintenance					✓		
Expositions							
File series					✓		
Graphics Production		✓			✓		
Group Purchases					✓		
Handicapped Employee Assistance					✓		
Equipment/Systems/Software Acquisition					✓		
Configuration					✓		
Evaluation					✓		
Production support							
Installation					✓		
Justification assistance					✓		
Policy Guidelines/Standards					✓		
Problem Diagnosis					✓		
Procurement Processing					✓		
Procurement review/approval					✓		
Specifications					✓		
Testing/Evaluation					✓		

AUTOMATION + STRESS MANAGEMENT

- IC ORIENTED ON AUTOMATION DISCIPLINE
- HAVE DEVELOPED A PROGRAM TO LOG ALL CALLS, EQUIPMENT WORK ORDER WORK ORDER CLOSE OUT AND PROBLEM RESOLUTION. WILL EVENTUALLY TIE IN TO A PARTS INVENTORY SYSTEM TO IDENTIFY PARTS AVAILABLE. HAVE BOTH A LAN AND STANDALONE VERSION.

IC SERVICE	PRINT/ PUB	VI	BM	COMM	AUTO	H/W	S/W
Help line, Help Desk, Hot Line					✓		
Inventory Management					✓		
Linkage to data bases					✓		
Loaner Equipment					✓		
Monitor access to corporate data							
Down load data for manipulation on micro					✓		
Needs analysis/user requirements definition					✓		
Newsletter					✓		
Office automation planning					✓		
One-on-one Training							
On-going applications support					✓		
Public Domain Software					✓		
Resource Groups/Persons					✓		
Seminars							
System Design					✓		
Technical Library					✓		
Technology update/briefing					✓		
Time Sharing Support							
User Group							
User's Guide					✓		
Video Tapes					✓		
Vendor Display Area					✓		
Vendor Liaison					✓		

ENCLOSURE 5

IC SELECTION CRITERIA

MEMORANDUM June 27, 1991

TO: Dr. Michael Evans

FROM: Terry N. Hilderbrand

SUBJECT: Information Center - Help Desk Project

1. The ICs selected for this study should be selected so that the study represents the Army in general. However, this will cause a wide range of responses to the survey because of the variation of the implementation of IMA responsibilities in the various commands and at the installations. Therefore, when the data is collected, the survey will reflect which criteria applies to the surveyed IC. Analysis of the data will also be done with this in mind.

2. Suggested criteria for the selection of the ICs for this study follows:

a. Major Army Command
   - FORSCOM
   - TRADOC
   - AMC
   - ISC

b. Installation Population /Size
   - Large - 25,000+
   - Medium - 15,000 - 25,000
   - Small - Less than 5,000

c. Installation Mission /Function
   - Tactical - Combat /Combat Support
   - Theater - Combat Service Support
   - Sustaining Base - Sustainment /Research /Industrial Base

cc: J. Coleman

ENCLOSURE 6

LIST OF ICs INTERVIEWED

INFORMATION CENTERS INTERVIEWED

Chief, Information Center
HQ, Army Material Command
ATTN: AMXDO
5001 Eisenhower Ave.
Alexandria, VA 22333
703-274-9333

HQ INSCOM
ATTN: IAIM-IS-D
Ft. Belvoir, VA 22060-5320
703-706-2251

U.S. Army Information Systems Command - Vint Hill Farms
Director of Information Management
Stop 45
Vint Hill Farms, VA 22186
703-349-5246

U.S. Army Information Systems Command - Ft. Monroe
Director of Information Management
ATTN: ATID-TII
Ft. Monroe, VA 23651-7051
804-727-4194

U.S.Army Information Systems Command - DCL
Bldg 10204
Mail Stop L41
Ft. Lee, VA 23801-6065
804-734-1065

HQ 902nd Military Intelligence Group
Bldg 4554
Ft. Mead, MD 20755
301-677-4695

U.S. Army Information Systems Command - MTMC
ATTN: MT-IMP-TI
5611 Columbia Pike
Falls Church, VA 22041-5050
703-756-1330

U.S. Army Information Systems Command - FBH
ATTN: ASQNB-ZII
Ft. Ben Harrison, IN 46249-5101
317-543-7151

U.S.Army Information Systems Command - RI
ATTN: ASQNC-ARI-ICI
Rock Island Arsenal, IL 61299-7210
309-782-2016

U.S. Army Information Systems Command - Ft. McPherson
Bldg 205
ATTN: ASQNA-MPC-IC
Ft. McPherson, GA 30330-5000
404-752-2892

ENCLOSURE 7

SOFTWARE PRODUCTS

TITLE: SUPPORTMAGIC
VENDOR: MAGIC SOLUTIONS, INC.
180 Franklin Tpke., 2nd Fl.
Mahwah, NJ 07430
(201) 529-5533; FAX: (201) 529-1808
FUNCTION: Help desk and asset management software.
HARDWARE: IBM PC; 8MB disk space
MIN. MEMORY: 450 KB RAM
OPERATING SYSTEM: MS/DOS compatible; OS/2; UNIX; XENIX; DEC VAX/VMS; HP 9000; Sun SPARCstation compatible; Windows 2 .X, Windows 3.0, DESQview support
SOURCE LANGUAGE: C source code
PRICING: $2,500 (single user); $9,000 (multi-user); site license available
MAINTENANCE: Fee 15% of purchase price per yr.; 90 day free phone support
FIRST INSTALLED: 1990
NO. INSTALLED: 175

NOTES: Logs, assigns, priortizes and tracks support requests via a central database, manages inventory by item or configuration, tracks asset value, maintains warranties and service contracts and handles capital expenditures. Optional Report Generator, Help Desk Expert System, Purchasing, Leasing, Service Contracts and Scheduling modules available.

REFERENCE(S): DATA SOURCES, PAGE J-440.

TITLE: MOHOGANY HELPDESK
VENDOR: EMERALD INTELLIGENCE, INC.
3915 Research Park Dr., Ste. A1
Ann Arbor, MI 48108
(313) 663-8757; FAX: (313) 663-5284
FUNCTION: Development of help desk applications.
HARDWARE: Apple Macintosh, IBM PC, DEC VAX/VMS,; 1 MB disk space; mouse required/recommended
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible; Windows 3.0 support; Utilizes EMS
SOURCE LANGUAGE: C source code
PRICING: $5,000-$11,000, site license available
MAINTENANCE: Fee 15% per year
FIRST INSTALLED: 1990
NO. INSTALLED: 10

NOTES: Simplifies development of help desk applications. Run-time licenses, management report tool and customization package available. Uses multimedia, pictures, voice and scanned images.

REFERENCE(S): DATA SOURCES, PAGE J-439.

TITLE: KNOWLEDGE PRO
VENDOR: KNOWLEDGE GARDEN, INC.
473A Malden Bridge Rd.
Nassau, NY 12123
(518) 766-3000, FAX: (518) 766-3003
FUNCTION: Communication of complex information using simple commands (Expert System).
HARDWARE: IBM PC, 1 MB disk space, mouse required/recommended
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Turbo Pascal
PRICING: $495, site license available
MAINTENANCE: Tech support via on-line access
FIRST INSTALLED: 1987
NO. INSTALLED:

NOTES: Combines hypertext and expert system technologies in high-level language for writing standalone applications or adding intelligent aesthetic interface to existing programs. Lets non-programmers communicate complex information using simple commands. Integrates hypertext, rules, math, lists and logic. Reads, writes and searches text files. User can include routines written in other languages and call other programs.

REFERENCE(S): DATA SOURCES, PG J-77; PROGRAMMER'S SHOP, PG 19.

TITLE: KNOWLEDGEMAKER
VENDOR: KNOWLEDGE GARDEN, INC.
473A Malden Bridge Rd.
Nassau, NY 12123
(518) 766-3000; FAX: (518) 766-3003
FUNCTION: Finds relationships in data.
HARDWARE: IBM PC, EGA required, 1 MB disk space
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $149, site license available
MAINTENANCE: Tech support via on-line access
FIRST INSTALLED: 1988
NO. INSTALLED:

NOTES: Induction system for Knowledge Garden's Knowledge Pro. Accesses LOTUS 1-2-3 and ASCII files and output rules in correct syntax for Insight 2+, M.1., Turbo Prolog, Micro Expert or Knowledge Pro.

REFERENCE(S): DATA SOURCES, PG J-77; PROGRAMMER'S SHOP, PG 19.

TITLE: KNOWLEDGEPRO DATA BASE TOOLKIT
VENDOR: KNOWLEDGE GARDEN,INC.
473A Malden Bridge Rd.
Nassau, NY 12123
(518) 766-3000; FAX: (518) 766-3003
FUNCTION: Allows user to read dBase III and LOTUS 1-2-3 files from within Knowledge Base.
HARDWARE: IBM PC, 500 KB disk space
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Turbo Pascal
PRICING: $129, site license available
MAINTENANCE: Tech support via on-line access
FIRST INSTALLED:
NO. INSTALLED:

NOTES: For use with KnowledgePro. Permits integration of data with KnowledgePro topic structure.

REFERENCE(S): DATA SOURCES, PG J-77; PROGRAMMER'S SHOP, PG 19.

TITLE: KNOWLEDGEPRO GRAPHICS TOOLKIT
VENDOR: KNOWLEDGE GARDEN,INC.
473A Malden Bridge Rd.
Nassau, NY 12123
(518) 766-3000; FAX: (518) 766-3003
FUNCTION: Allows user to define hypergraphics using PC Paintbrush images.
HARDWARE: IBM PC, 500 KB disk space, min. CGA required
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Turbo Pascal
PRICING: $129, site license available
MAINTENANCE: Tech support via on-line access
FIRST INSTALLED:
NO. INSTALLED:

NOTES: Access CGA, EGA, VGA and extended VGA resolution hypergraphics. Allows any point on PC Paintbrush (PCX format) picture to be designated as hot-spot and linked via KnowledgePro topic structure to further images, text, calculations, data or any Knowledge Pro command.

REFERENCE(S): DATA SOURCES, PG J-77; PROGRAMMER'S SHOP, PG 19.

TITLE: KNOWLEDGEPRO VIDEO DISK TOOLKIT
VENDOR: KNOWLEDGE GARDEN,INC.
473A Malden Bridge Rd.
Nassau, NY 12123
(518) 766-3000; FAX: (518) 766-3003
FUNCTION: Provide control of interactive laser video.
HARDWARE: IBM PC, 500 KB disk space
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Turbo Pascal
PRICING: $249
MAINTENANCE: Tech support via on-line access
FIRST INSTALLED:
NO. INSTALLED:

NOTES: For use with KnowledgePro. Controls Sony LDP 2000 or compatible laser disk player. Allows user to define sequences of motion or still video as KnowledgePro topics which can be accessed from within Knowledge Base.

REFERENCE(S): DATA SOURCES, PG J-77; PROGRAMMER'S SHOP, PG 19.

TITLE: HELP EXPRESS
VENDOR: SOFTWARE MARKETING GROUP
108 3rd St.
Des Moines, IA 50309
(515) 284-0209; FAX: (515) 243-8816
FUNCTION: Help desk product for end users of technical products.
HARDWARE: IBM PC; 10 MB disk space; CGA required; math co-processor support
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible; Novell, 3Com Banyan network version available; Windows 2.X support
SOURCE LANGUAGE: BASIC source code; source code $5,000
PRICING: $1,495-$4,495; site license available
MAINTENANCE: Fee $899 per year
FIRST INSTALLED: 1988
NO. INSTALLED: 50

NOTES: Help desk product for end users of technical products or for customer service based question and answer problem solving. Searches past problems and solutions using plain English question. User can determine if problem has already been solved. All fields variable length and user definable. Searches past problem description field and solution fields or query on any field. Uses 4GL DBMS and has SQL interface.

REFERENCE(S): DATA SOURCES, PAGE J-440.

TITLE: TOP OF MIND
VENDOR: THE MOLLOY GROUP, INC.
40 Malapardis Rd.
Morris Plains, NJ 07950
(201) 267-4464; FAX: (201) 267-6105
FUNCTION: Help desk management program.
HARDWARE: IBM PC
MIN. MEMORY:
OPERATING SYSTEM: MS/DOS compatible; OS/2; Novell; 3Com;NetBIOS, Banyan, AT&T StarLAN network version available; Windows, DESQview support
SOURCE LANGUAGE:
PRICING: $4,500 (single -user); $7,500-$15,000 (multi-user)
MAINTENANCE:
FIRST INSTALLED:
NO. INSTALLED:

NOTES: Builds own problem solving database. Creates detailed model of end user computing environment . Includes call logging, tracking, diagnosis, trend analysis and client information on single screen. Provides complete inventory tracking system. Experienc-Based Diagnostic Tool, hypertext on-line documentation and diagnostic suggestions. Merges problem/solution databases from several help desks into one.

REFERENCE(S): DATA SOURCES, PAGE J-440.

TITLE: HEAT
VENDOR: BENDATA MANAGEMENT SYSTEMS, INC.
1755 Telstar Dr. , Ste. 101
Colorado Springs, CO 80920
(800) 248-5667, (719) 531-5007; FAX: (719) 531-6522
FUNCTION: Provides automation and problem solving /management for help desks.
HARDWARE: IBM PC
MIN. MEMORY: 2MB RAM
OPERATING SYSTEM: MS/DOS compatible; Novell, 3Com, NetBIOS, Banyan,PC-LAN network available
SOURCE LANGUAGE: C; Clipper source code
PRICING: $5,000 and up; lease plan available; site license available
MAINTENANCE:
FIRST INSTALLED: 1990
NO. INSTALLED: 43

NOTES: Help desk Expert Automation Tool available as standalone or LAN. Includes reports and call logging. Compatible with Infoman, Netman and PNMS.

REFERENCE(S): DATA SOURCES, PAGE J-440.

TITLE: HELPLINE
VENDOR: ASOFTCO
215 S. Church St., Ste. A
Berryville, VA 22611
(800) 477-6647, (703) 955-1647; FAX: (703) 955-1812
FUNCTION: Help desk for user services, customer services.
HARDWARE: IBM PC
MIN. MEMORY: 512KB RAM
OPERATING SYSTEM: MS/DOS compatible; Novell, 3Com, NetBIOS, Token-Ring network version available
SOURCE LANGUAGE: C; Clipper source code
PRICING: $595 (single user); $2495 (network); site license available
MAINTENANCE: Free phone support; tech support via BBS
FIRST INSTALLED: 1988
NO. INSTALLED: 500

NOTES:Designed as help desk for user srvices, customer support, technical and operational personnel. Automates logging, tracking and reporting of incidents. Provides work orders, management reports/graphs, statistical information and historical data.

REFERENCE(S): DATA SOURCES, PAGE J-440.

TITLE: NEUROSHELL
VENDOR: WARD SYSTEMS GROUP, INC.
245 W. Patrick St.
Frederick, MD 21701
(301) 662-7950; FAX (301) 662-5666
FUNCTION: Decision making aid.
HARDWARE: IBM PC, 1 MB disk space
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $195, site license available
MAINTENANCE: Free phone support
FIRST INSTALLED: 1991
NO. INSTALLED: 3,100

NOTES: Shell program for applying neural networks to decision making, problem diagnosis, data classification and other applications where previously only rule-based expert systems were considered. Mimics biological learning process.

REFERENCE(S): DATA SOURCES, PG J-80; PROGRAMMER'S SHOP, PG 19.

TITLE: OPUS III
VENDOR: ROYKORE, INC.
2215 Filbert St.
San Francisco, CA 94123
(800) 227-0847, (415) 563-9175; FAX: (415) 563-0836
FUNCTION: Data management system.
HARDWARE: IBM PC
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: C source code, Windows 3.0 support
PRICING: $495
MAINTENANCE:
FIRST INSTALLED:
NO. INSTALLED:

NOTES: Allows user to use pictures to find and manage information in database. Enables user to start from big picture view of building, network system or geographic area and explode diagrams to successively finer levels of detail. Objects in a drawing can be linked to records in the database, other drawings or other Windows applications.

REFERENCE(S): DATA SOURCES, PG I-317, PROGRAMMER'S SHOP, PG 23.

TITLE: OPUS I
VENDOR: ROYKORE, INC.
2215 Filbert St.
San Francisco, CA 94123
(800) 227-0847, (415) 563-9175; FAX: (415) 563-0836
FUNCTION: Data management system, application development.
HARDWARE: IBM PC
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: C source code, Windows 3.0 support
PRICING: $395
MAINTENANCE:
FIRST INSTALLED: 1990
NO. INSTALLED: 1000

NOTES: Graphic-based data management system for storage of text, numbers, dates, bitmapped graphics or object oriented drawings. Utilizes Microsoft Windows environment. Imports/exports data in common formats.

REFERENCE(S): DATA SOURCES, PG I-317, PROGRAMMER'S SHOP, PG 23.

TITLE: HYPERBASE
VENDOR: COGENT SOFTWARE, LTD.
21 William J. Hgts.
Framingham, MA 01701
(508) 875-6553
FUNCTION: Hypertext development system.
HARDWARE: IBM PC, CGA required
MIN. MEMORY: 384 KB RAM, mouse required/recommended
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $99-249
MAINTENANCE: Unlimited phone support
FIRST INSTALLED: 1990
NO. INSTALLED:

NOTES: Hypertext development system with Cogent's Prolog compiler. Supports development of dynamic links allowing document changes to reflect skill levels and intentions of different readers. Provides tools to capture graphical images directly from screen and compress and store in separate file.

REFERENCE(S): DATA SOURCES, PG J-75; PROGRAMMER'S SHOP, PG 23.

TITLE: HYPERPAD
VENDOR: BRIGHTBILL-ROBERTS & CO., LTD
120 E. Washington St., Ste. 421
Syracuse, NY 13202
(800) 444-3490, (315) 474-3400; FAX: (315) 472-1732
FUNCTION: Object-oriented authoring environment, multimedia database.
HARDWARE: IBM PC and compatible, mouse required/recommended
MIN. MEMORY: 384 KB RAM, 1 MB disk space
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $150, site license available
MAINTENANCE: Phone support; tech support via BBS
FIRST INSTALLED:
NO. INSTALLED: 25,000

NOTES: Object-oriented application designer. Creates simple custom systems by pasting together fields, scrolling windows, dialog boxes and mouse selectable buttons. Provides various text search and database functions. Includes on-line help and hypertext tutorial.

REFERENCE(S): DATA SOURCES, PG I-13, PROGRAMMER'S SHOP, PG 23.

TITLE: EXPERT CHOICE
VENDOR: EXPERT CHOICE, INC.
4922 Ellsworth Ave.
Pittsburgh, PA 15213
(412) 682-3844
FUNCTION: Decision analysis for middle to upper level management; project management; task and resource allocation.
HARDWARE: IBM PC/XT/AT & compatibles; PS/2; up to VGA; Printer required
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS/DOS 2.1 or higher; Novell supported
SOURCE LANGUAGE: BASIC, source code not available
PRICING: $495
MAINTENANCE: 90 day warranty; $25/hr thereafter
FIRST INSTALLED: 1983
NO. INSTALLED: 4,000

NOTES: A decision support system based upon the Analytical Hierarchy Process. Used to collect, analyze or communicate data for a short- or long- term marketing problem or decision. Used for strategic planning, project evaluation, employee evaluation, site location, legal and decision policy.

REFERENCE(S): DATAPRO, VOL 2, JUNE 91, PG MS38-100-104.

TITLE: EXPERT SYSTEM TUTORIAL
VENDOR: DYNACOMP, INC.
The Dynacomp Office Building
178 Phillips Rd.
Webster, NY 14580
(716) 265-4040
FUNCTION: Examine expert systems for particular situations.
HARDWARE: IBM PC/XT/AT and compatibles
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Machine language, source code available
PRICING: $29.95
MAINTENANCE: Hot line
FIRST INSTALLED:
NO. INSTALLED:

NOTES: This system allows the user to trouble-shoot or do a "needs analysis". EST is a low-cost way to examine this type of product to see if this procedure is applicable to a certain situation. Some uses of EST include a trouble shooting program for electronics and figuring the cheapest means in a mailroom.

REFERENCE(S): DATAPRO, VOL 2, PG MS22-300-108.

TITLE: BUY OR LEASE: A FINANCIAL DECISION MAKER
VENDOR: 4-DEGREE CONSULTING
4736 Oxford Rd.
Macon, GA 31210
(912) 477-0293
FUNCTION: Cost comparison
HARDWARE: IBM PC/XT/AT compatible
MIN. MEMORY: 64 KB RAM
OPERATING SYSTEM: MS/PC DOS compatible
SOURCE LANGUAGE: BASIC, source code available
PRICING: $200
MAINTENANCE: Included
FIRST INSTALLED: 1984
NO. INSTALLED:

NOTES: Compares the cost of purchasing equipment to the cost of leasing.

REFERENCE(S): DATAPRO, VOL 2, JUNE 1991, PG MS38-100-102.

TITLE: THE SERVICE CALL MANAGER
VENDOR: BATHER BELROSE BOJE, INC.
14180 W. Trunk Highway 5
Eden Praire, MN 55344
(612) 937-5150
FUNCTION: Equipment maintenance recordkeeping and management and work order generation.
HARDWARE: IBM PC/XT/AT and compatible
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Compiled dBase, source code not available
PRICING: Contact Vendor
MAINTENANCE: Included
FIRST INSTALLED: August 1987
NO. INSTALLED: 29

NOTES: Core of an integrated modular system for managing equipment maintenance. Allows entry of requests for service/trouble calls and works specifications as individual work orders. Includes complete work history data file. Can generate immediate work order reports plus screen displays or printed reports of work in progress or work history.

REFERENCE(S): DATAPRO, VOL 2, APRIL 1991, PG MS32-950-107.

TITLE: ON-LINE HELP
VENDOR: OPT-TECH DATA PROCESSING
P.O. Box 678
Zephyr Cove, NV 89448
(702) 588-3737; FAX (702) 588-7576
FUNCTION: Integrates help windows into user's programs.
HARDWARE: IBM PC, 30 KB disk space
MIN. MEMORY: 64 KB RAM
OPERATING SYSTEM: MS/DOS compatible;
SOURCE LANGUAGE: Assembly source code
PRICING: $149, site license available
MAINTENANCE: Phone support, tech support via BBS
FIRST INSTALLED: 1985
NO. INSTALLED: 1000

NOTES: Interfaces to languages and allows user to access and display help windows and restore original screen contents.

REPERENCE(S): DATA SOURCES, PG I-190, PROGRAMMER'S SHOP, PG 69.

TITLE: HELP!BUILD
VENDOR: PACIFIC FIRMWARE MARKETING CORP.
1335 West 8th Ave.
Vancouver, BC, CD V6H 3W4
(604) 732-1260
FUNCTION: System for creating on-line help, error, and documentation screens.
HARDWARE: IBM PC and compatible
MIN. MEMORY: 19 KB RAM
OPERATING SYSTEM: MS/DOS compatible; network capabilities
SOURCE LANGUAGE:
PRICING: $179
MAINTENANCE:
FIRST INSTALLED:
NO. INSTALLED:

NOTES: Memory resident help information and error screen generation tool. Includes screen editor, optimizer, compiler, cross-reference generator and run module. Allows user to overlay and call help and error screens from source programs. Creates independent help systems that can be hot-key accessed. Can link help screens in any order. Supports any language that supports BIOS and DOS interrupts.

REFERENCE(S): DATA SOURCES, PG I-271, PROGRAMMER'S SHOP, PG 69.

TITLE: UPSHOT
VENDOR: AUTUMN HILL SOFTWARE
1145 Ithaca Dr.
Boulder, CO 80303
(303) 494-8869; FAX (303) 494-7802
FUNCTION: On-line help tool to allow developers to construct large scale documentation.
HARDWARE: IBM PC and compatibles, 300 KB RAM
MIN. MEMORY: 100 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: C source code
PRICING: $95, site license available
MAINTENANCE: Free phone support, phone/fax support, tech support via BBS.
FIRST INSTALLED: 1990
NO. INSTALLED:

NOTES: Provides developer or end user with ability to implement on-line documentation in manual or book format. Includes TSR search engine that can be popped up from within the program. Includes indexed searches, string searches, background printing, configurable colors, hot-key and other features.

REFERENCE(S): DATA SOURCES, PG I-183, PROGRAMMER'S SHOP, PG 69.

TITLE: THE COMPUTER LITERACY TRAINING SERIES
VENDOR: LEARN-PC VIDEO SYSTEMS
5101 Hwy 55
Minneapolis, MN 55422-5134
(612) 544-4500, (800) 532-7672
FUNCTION: Computer literacy training system.
HARDWARE: IBM PC/XT/AT and compatibles, PS/2
MIN. MEMORY: 128 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $495
MAINTENANCE:
FIRST INSTALLED: July 1989
NO. INSTALLED:

NOTES: Explains computer features, concepts and technology. Available in VHS and BETA videotape formats also.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-104.

TITLE: COMPUTER CONCEPTS
VENDOR: VENTURA EDUCATIONAL SYSTEMS
3440 Brokenhill St.
Newbury Park, CA 91320
(805) 499-1407, (800) 336-1022; FAX: (805) 498-8364
FUNCTION: Computer literacy training.
HARDWARE: Apple II, Macintosh, IBM PC/XT/AT and compatibles.
MIN. MEMORY: Apple - 48 KB RAM; Macintosh/IBM - 512 KB RAM
OPERATING SYSTEM: MS/DOS and DOS 3.3 compatible
SOURCE LANGUAGE: BASIC, Assembly; source code not available
PRICING: $49.95
MAINTENANCE:
FIRST INSTALLED: 1984
NO. INSTALLED: 2000

NOTES: Overview of computer fundamentals. Key concepts relevant to computer history, workings of a computer, BASIC statements, understanding computers, flowcharts, computer uses, computer components and peripherals.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-104.

TITLE: PC INSTRUCTOR
VENDOR: INDIVIDUAL SOFTWARE, INC.
125 Shoreway Rd., Suite 3000
San Carlos, CA 94070
(415) 595-8855
FUNCTION: Computer training on PC usage.
HARDWARE: IBM PC/XT/AT and compatibles, PS/2
MIN. MEMORY: 128 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $49.95, available on 3 1/2" and 5 1/4" diskette
MAINTENANCE:
FIRST INSTALLED:
NO. INSTALLED:

NOTES: Uses interaction, creative graphics, and animation to help new users of PCs learn keyboard operations. Guides new users through various hardware components. Introduces software applications and lets user experience spreadsheets, database management, word processing, integrated software and communications.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-122.

TITLE: THE PHOENIX/MICRO AUTHORING SYSTEM
VENDOR: GOAL SYSTEMS INTERNATIONAL, INC.
7965 N. High St.
Columbus, OH 43235
(614) 888-1775, (800) 848-4048
FUNCTION: Computer based training presentation and authoring system.
HARDWARE: IBM PC/XT/AT and compatibles, IBM PS/2
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: C, source code not available
PRICING: Contact Vendor. Available on GSA schedule.
MAINTENANCE: First year included, thereafter 15% of purchase price per year.
FIRST INSTALLED: Oct 1986
NO. INSTALLED: 100+

NOTES: This system provides a facility to build, modify, and administer a computer based training program. It allows the user to create interactive CBT courses as well as present courses. Provides student managment and record keeping. Includes full screen editor with word processing and screen capture, color, graphics, mouse support, windowing and overlays, interactive overlays, integrated questions and simulation editors and answerudging. Can be uploaded to a mainframe.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-123.

TITLE: CREATIVE COURSE WRITER
VENDOR: CREATIVE APPROACHES, INC.
55 State St., E.
Bloomfield, NY 14443
(716) 657-6379
FUNCTION: Computer based training development.
HARDWARE: IBM PC/XT/AT and compatible
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: BASIC, source code available
PRICING: $20,000 perpetual lease
MAINTENANCE: Included, hot line available (716) 657-6379
FIRST INSTALLED: June 1985
NO. INSTALLED:

NOTES: Enables the computer based training developer (author) to write a CBT course using any word processor which produces ASCII files. The program then converts the file to IBM mainframe CBT code which is executable on IBM's Interactive Instructional Presentation System (IIPS) or on System's PHOENIX System.

REFERENCE(S): DATAPRO, VOL 2, NOV 90, MS22-300-105.

TITLE: T1 TRANSMISSION BASICS
VENDOR: TELETUTOR
P.O. Box 6667
Portsmouth, NH 03801
(603) 433-2242, (800) 542-2242
FUNCTION: Computer based training in T1 transmission fundamentals.
HARDWARE: IBM PC/XT/AT and compatibles
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE:
PRICING: $399, quantity discounts available, demo $15.
MAINTENANCE: Telephone support and updates available
FIRST INSTALLED: June 1986
NO. INSTALLED: 1000+

NOTES: Provides a comprehensive introduction to the fundamentals of T1 transmission designed for telecommunication managers, engineers, technicians, consultants, sales and marketing personnel, technical students and others involved in telecommunications.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-128.

TITLE: X.25 IN MODERN DATA COMMUNICATIONS
VENDOR: TELETUTOR
P.O. Box 6667
Portsmouth, NH 03801
(603) 433-2242, (800) 542-2242
FUNCTION: CBT on the technical and economic consideration of X.25
HARDWARE: IBM PC/XT/AT and compatibles
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: MS/DOS compatible
SOURCE LANGUAGE: Source code not available.
PRICING: $499, quantity discounts available, demo $15.
MAINTENANCE: Included in price, updates available
FIRST INSTALLED: March 1987
NO. INSTALLED: 1000+

NOTES: Focuses on the technical and economic aspects of X.25 communications for both the technical and non-technical professional or anyone interested in packet mode data communications.

REFERENCE(S): DATAPRO, VOL 2, NOV 1990, PG MS22-300-129.

ENCLOSURE 8

SOFTWARE SELECTION TOOLS

SOFTWARE SELECTION TOOLS[1]

Special Serial Reports

Datapro Reports on Microcomputers, Datapro, a unit of McGraw-Hill Information Service Company, Delran, NJ (800) 328-2776 or (609) 764-0100.

Software Digest Ratings Report, National Software Testing Laboratories, Inc., Plymouth Meeting, PA, (800) 223-7039 or (215) 941-9600.

Software Digest Macintosh Ratings Report, National Software Testing Laboratories, Inc., Plymouth Meeting, PA, (800) 223-7039

Software Reviews on File, Facts on File, Inc., New York, NY, (800) 322-8755 or (212) 683-2244 in NY, AK, or HI.

Hardcopy Software Directories

A Menu Information Directory for the IBM PC & Compatibles, Black Box Corp., Pittsburgh, PA, (800) 843-6368 or (412) 746-6368.

A Menu Information Directory for Macintosh Computers, Black Box Corp., Pittsburgh, PA, (800) 843-6368 or (412) 746-6368.

Datapro Directory of Microcomputer Software, Datapro, a unit of McGraw-Hill Information Services Co., Delran, NJ, (800) 328-2776 or (609) 764-0100.

Data Sources, Ziff-Davis Publishing Co., Cherry Hill, NJ, and New York, NY, (609) 354-4999 or (212) 503-4400.

The Software Catalog, Microcomputers, Elsevier Science Publishing Co., Inc., New York, NY, (212) 989-5800.

The Software Encyclopedia 1990, R.R. Bowker Co., New York, NY, (800) 521-8110 or (212) 337-6934 in NY, AK, or HI.

Microcomputer Magazine Index

Computer Literature Index, Applied Computer Research, Inc., Phoenix, AZ, (800) 234-2227 or (602) 995-5929.

Magazine Index, Information Access Co., Foster City, CA, (800) 227-8431.

Magazine Index Hot Topics in Review and Product Evaluations, Information Access Co., Foster City, CA, (800) 227-8431.

Microcomputer Index, Learned Information, Inc., Medford, NJ, (609) 654-6266.

On-line Software Directories

ABI/Inform, UMI/Data Courier, Louisville, KY, (800) 626-2823 or (502) 583-4111.

Business Software Database, Information Sources, Inc., Berkeley, CA, (800) 433-6107 or (415) 525-6220 in CA, AK, HI.

Computer ASAP, Information Access Co., Foster City, CA, (800) 441-1165.

The Computer Database, Information Access Co., Foster City, CA, (800) 441-1165.

Computer Database Plus, Information Access Co., Foster City, CA, (800) 441-1165.

Computer Directory, Ziff Communications Co., New York, NY, (212) 503-4400.

Magazine Index, Information Access Co., Foster City, CA, (800) 441-1165.

Microcomputer Software Guide, R.R. Bowker Co., New York, NY, (800) 323-3288, or (212) 337-6989.

Micro Software Directory, Weston, CT: Online, Inc., (203) 227-8466.

Menu - The International Software Database (ISD), Black Box Corp., Pittsburgh, PA, (800) 843-6368 or (412) 746-6368.

On-line Software Directories on CD-ROM

ABI/Inform Ondisc, UMI/Data Courier, Louisville, KY, (800) 626-2823 or (502) 583-4111.

Computer Library, Ziff Communications Co., New York, NY, (212) 503-4400.

Software-CD, SilverPlatter Information, Inc., Wellesley Hills, MA, (800) 343-0064 or (617) 239-0306.

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[1] Mueller, Nancy S., "Microcomputer Software Selection Research Tools", Information Center Magazine, May 1990: 24-29.

ENCLOSURE 9

VENDOR BROCHURES

VENDOR BROCHURES

Brochures collected from vendors, either through the mail, at trade shows or from advertisements in magazines are included under separate cover. Inclusion in this list does not imply endorsement of a particular technology or product. These products are included to demonstrate the variety of technologies that are available to assist the Information Center better service its customer.

A list of those products provided follows:

Technology/Product	Vendor
Help Desk Software	
SupportMagic	Magic Solutions
Multi-application Environment	
Microsoft Windows	Microsoft Corporation
Project for Windows	
PowerPoint for Windows	
Excel for Windows	
Word for Windows	
Multimedia PCs	Tandy Corporation
Remote Location Operation	
Activator	Automatic Computer Technology, Inc
Scanner	
Character	Computer Friends, Inc.
Fax-L770	Canon, USA, Inc
Notebook Computers	
GRIDPAD	GRiD Systems Corporation
Optical Storage	
REO-series	Pinnacle Micro
Video	
Computer Aided Presentation System	Computer Aided Communications, Inc.

ENCLOSURE 10

HARDWARE PRODUCTS

ERASABLE OPTICAL DISK DRIVES

The erasable optical disk drive provides a flexible mass storage capability that is between the hard disk and magnetic tape technologies. It provides the convenience of random access that is typical of the hard drive and mass storage that is typical of a tape drive. Although it does not match the hard disk in terms of speed it is much faster than the magnetic tape drive. The mass storage capability comes not only from the fact that the disk stores much more data than the typical 5 1/4 inch diskette but also because the optical disk drives are removeable cartridges. Those removeable cartridges essentially provide an unlimited storage capacity. With the optical disk drive, access to archived data is much easier and quicker. In addition, archiving data is easier and faster because the optical disk drive can run unattended for backups and at a faster speed than tapes.[1]

Another important aspect of the erasable optical disk drive is that they provide a measure of security that is not found with hard drives. One security aspect is provided in the way that the data is written, using magnetic-optical technology which is not affected by magnetic fields in the same manner as typical hard or floppy drives. The data is written on a disk using a magnetic head, however, when writing data, the disk is heated to approximately 250 degrees Fahrenheit by an optical laser. That same laser is used to read the data, however the power is less in the read mode. Secondly, because the disks are removeable, multiple users can use the same system without the risk of their information being compromised. Once users have completed their work they can carry their disks away with them.[2]

Included are features that should be considered in the evaluation of optical disk drives. Note that the technical characteristics of those included are very similar. With only a few different manufacturers of the disk drive this can be expected. However, one item to consider in purchasing an optical disk drive is the requirement for compatibility with other drives. Typically the interface between manufacturers is difficult at best.

Information on retailers of these products is also included.

ERASABLE OPTICAL DISK DRIVES FEATURES[3]

	Inspire + PC	HammerDisk 600	LaserBank 600R	pcMAXimum Storage Series Cosmos 600	LaserStar LSE1-1000-AT
LIST PRICE	$7200-$13000	$4995	$6535	$5095	$7995-$15995
FEATURES					
Cartridge Capacity (MB)	650	572	600	590	928
Interface	SCSI	SCSI	SCSI	SCSI	SCSI
compatibility	IBM PC, XT, AT	IBM AT, PS/2 MACINTOSH PLUS, SE,SE/30,II,IIx, IIxc,IICI, IIfx	IBM PC, XT AT, RT, PS/2, MACINTOSH	IBM AT, PS/2	IBM AT, PS/2
Access Time (ms)	83	84	83	67	84
Max. Data Transfer Rate (MB/sec)		.45	.68	1.4	10-13
Mean Time Between Failure (hours)	20000	30000	20000	20000	30000
Manufacturer	Sony	Sony	Sony	Ricoh	Tahiti
Warranty	1 yr	1 yr	1 yr		1 yr
Tech Support		9-5 PST toll	8-8 EST toll free		7-6 PST toll free

ERASABLE OPTICAL DISK DRIVES
COMPANY INFORMATION[4]

PRODUCT: INSPIRE + PC
COMPANY: ALPHATRONIX, INC
PO Box 13687
2300 Englert Dr., Ste. C
Research Triangle Park, NC 27709-3687
(800) 229-8686, (919) 544-0001; FAX (919) 544-4079
PRICE: $7200 (single drive) - 13000 (dual drive)
OPERATING SYSTEM: DOS, VMS, Sun, Macintosh
FIRST INSTALLED: 1988+

PRODUCT: HAMMERDISK 600
COMPANY: FWB INC.
2040 Polk St., Ste., 215
San Francisco, CA 94109
(415) 474-8055; FAX (415) 775-2125
PRICE: $4995
OPERATING SYSTEM: DOS, Xenix, Novell
FIRST INSTALLED: 1990

PRODUCT: LASERBANK 600R
COMPANY: MICRO DESIGN INTERNATIONAL, INC. (MDI)
6985 University Blvd.
Winter Park, FL 32792
(800) 228-0891, (407) 677-8333; FAX (407) 677-8365
PRICE: $6535
OPERATING SYSTEM: DOS, Unix, Xenix, Novell, Sun, Macintosh
FIRST INSTALLED: 1989

PRODUCT: PCMAXIMUM COSMOS 600
COMPANY: RACET COMPUTES, LTD.
3150 E. Birch St.
Brea, CA 92621
(714) 579-1725; FAX (714) 579-3183
PRICE: $5095
OPERATING SYSTEM: DOS, Novell
FIRST INSTALLED: 1989

PRODUCT: LASERSTAR LSE1-1000-AT
COMPANY: STORAGE DIMENSIONS, INC.
2145 Hamilton Ave.
San Jose, CA 95125
(408) 879-0300; FAX (408) 377-4988
PRICE: $7995, $15995 (dual drive version for DOS and Macintosh)
OPERATING SYSTEM: DOS (LaserStar), Unix, Xenix, (x/Star),
Macintosh (Macinstar)
FIRST INSTALLED: 1989

[1]Rosch, Winn L., "Rewritable Optical Drives Maximize Storage", PC Week, June 4, 1990: 111-120.
[2]Rosch, Winn L. , "Rewritable Optical Reduces Insecurities", PC Week, June 18, 1990: 125-129.
[3]Data Sources, Hardware, Vol 1, 1st Edition, 1991.
[4]IBID.

FACSIMILE BOARDS[1]

Facsimile (fax) boards provide a convenience that is not normally available in standalone fax operations. The standalone fax, although capable, reliable machines, require a lot of "operation" attention for any operation other than single addressee, single page transmissions. In addition, standalone fax machines normally range in cost from $800 to $1200. The fax boards, on the other hand, range from $200 to $500 and require less operator intervention than the standalone machines. They allow the operator to send word processing documents to multiple locations straight from disk at designated times. In general the fax boards provide the same capabilities as the standalone fax at a lower cost and with less human intervention. However the fax board should not be considered as a replacement to the standalone fax, but more as a compliment to it.

The fax board can assist the IC help desk in the dissemination of documents such as work orders, requisitions, newsletters, bulletins, and in the reduction of paperwork required for staffing papers and documents. However, before purchasing a fax board many available options or features must be considered. Determining the actual requirement, or possible future requirements, is a critical function in choosing the correct fax board. The cheapest or the one with the most popular name may not meet those requirements, therefore a close study of what is required versus what is available must be done. For example, when we think of standalone fax machines we generally assume that the machine will send and receive faxes. Note on the chart of features one of the products transmits but does not receive faxes. Also note that some have maximum number of pages that can be transmitted. Some run in a background mode while others do not. This will have an impact on whether or not a PC will have to be dedicated to operate the fax board. If coresident the fax will stop to send/receive.

Other important considerations in selecting the fax machine:

Quality of the output.

Telephone connect time. There are no real time savings over standalone versus boards on connect time but there is a difference among the amount of connect time required by each fax board.

File storage. If the incoming fax files are stored on disk, 100K or more of storage is needed to store 2 pages. The file is a graphic file, not a text file, therefore to edit the file a conversion software package or an OCR to convert the file must be

available. The graphic file will have to be printed then read back into the PC using the OCR software and hardware. However, the need to edit a faxed document should be considered prior to purchasing the OCR capability.

Networking fax boards. To use a fax board in the networking mode, network specific software or e-mail is required with the fax board designated as a user.

One difficulty with a fax board arises when the requirement is to send a hard copy document that is not on disk. This will require that the document be entered into the word processing system by typing or by scanner. Information on scanners is provided in more depth in another section of this report.

Included are features for consideration in the evaluation of facsimile boards. Note that the characteristics of the sample products varies significantly among the products.

FACSIMILE BOARDS FEATURES[2]

	Fax96	EZ-Fax48/96	SmartFax/48	Hayes JT Fax 4800B	SendFax Modem 4800	Connection Coprocessor
LIST PRICE	$195	$199 /$299	$499/$299	$295	$249	$695
FEATURES						
Group 3 speeds	9600, 7200 4800, 2400	4800, 2400/ 9600, 7200 4800, 2400	9600/4800	4800, 2400	4800	9600
High resolution mode	Y	Y/Y	Y/Y	Y	N	Y
Gray scale/dithering	N	Y/Y	Y/Y	Y	Y	Y
Transmits compressed fonts	N	Y/Y	Y/Y	Y	Y	Y
Max. pages transmitted	Unlimited	Unlimited	999/999	Unlimited	Unlimited	Unlimited
Polls	N	N/N	N/N	N	Y	Y
Runs in Background	Y	Y/Y	Y/Y	N	N	Y
RAM used	65K	60K/60K	50K/60K	N/A	N/A	63K with EMS 5.5K
Chip set used	Yamaha	Rockwell	Rockwell	Rockwell	Sierra	Rockwell
TRANSMISSION						
Accepts batch command line input	N	Y/Y	Y/Y	Y	N	Y
Transmits directly from scanner	Y	Y/Y	Y/Y	Y	N	N
Sends current screen in response to PrtScr	N	Y/Y	N/N	Y	N	N
Saves current screen to file	N	Y/Y	Y/Y	Y	N	Y
Directs printer text output to fax	N	Y/Y	N/N	Y	Y	Y
Directs printer graphics output to fax	N	Y/Y	N/N	N	N	Y
Saves printer text output to file	N	Y/Y	Y/Y	Y	N	N
Saves printer graphics output to file	N	Y/Y	Y/Y	Y	N	N
Converts to fax format from:						
ASCII	Y	Y/Y	Y/Y	Y	N/A	Y
.CUT (Dr. Halo)	N	Y/Y	Y/Y	N	N/A	N
.DCX (PC Paintbrush)	N	N/N	N/N	N	N/A	Y

Epson FX printer output	N	N/N	Y/Y	N	N/A	N
.IMG (GEM Paint)	N	N/N	N/N	N	N/A	N
.MSP (Microsoft Pain)	N	N/N	N/N	N	N/A	N
.PCX (PC Paintbrush)	Y	Y/Y	Y/Y	Y	N/A	Y
.PIC (Lotus 1-2-3)	N	N/N	N/N	N	N/A	N
.TIF (Tagged Image File)	Y	N/N	Y/Y	Y	N/A	N
Wordstar	N	N/N	N/Y	Y	N/A	N
Converts fax format to:						
.CUT (Dr. Halo)	N/A	Y/Y	Y/Y	N	N	N
.DCX (PC Paintbrush)	N/A	N/N	N/N	N	Y	Y
.IMG (GEM Paint)	N/A	N/N	N/N	N	Y	N
.MSP (Microsoft Paintbrush)	N/A	N/N	N/N	N	N	N
. PCX (PC Paintbrush)	N/A	Y/Y	Y/Y	Y	Y	Y
. SSC (SkySCAN Image Format)	N/A	N/N	N/N	N	N	N
.TIF (Tagged Image File Format)	N/A	N/N	Y/Y	N	Y	Y
Translates files automatically prior to transmission	Y	Y/Y	Y/Y	N	N	Y
Translates files automatically during transmission	N	Y/Y	N/N	Y	Y	Y
Erases automatically after transmission	Y	Y/Y	Y/Y	Y	Y	N
OPERATION						
Compatible scanners:						
Canon Image Scanner	Y	Y/Y	Y/Y	Y	N	Y
DEST PC Scan	Y	Y/Y	N/N	N	N	N
HP Scanjet	Y	N/N	Y/Y	Y	N	Y
Microtek	Y	N/N	N/N	N	N	Y
Panasonic	Y	N/N	N/N	N	N	N
Princeton Graphic Systems	Y	Y/Y	N/N	Y	N	N
Other	Chicon; any model that creates .PCX or . TIF file	Logitech Scanman	Pentax SB-A4301	Brother Chicon	None	None
Generates letterhead	N	N/N	Y/Y	Y	Y	Y
Generates automatic cover page	Y	N/N	Y/Y	Y	Y	Y
Graphics editor	N	N/N	Y/Y	Y	N	Y
Can merge fax files	Y	Y/Y	Y/Y	Y	Y	Y
Can chain files for	Y	N/N	Y/Y	Y	Y	Y

transmission						
Text editor	N	Y/Y	N/N	N	Y	Y
Generates custom fonts	N	Y/Y	N/N	N	Y	Y
Includes standard modem	N	N/N	N/N	N	Y	(Optional - $195)
Voice/fax auto-detect	(Opt - $250)	N/N	N/N	N	N	N
FCC certification class	B	B/B	A/A	B	B	B
Toll-free number for customer support	N	N/N	N/N	N	Y	Y
Extended service contract	Y	Y/Y	Y/Y	Y	N	Y

FACSIMILE BOARDS
COMPANY INFORMATION[3]

PRODUCT: FAX96
COMPANY: FREMONT COMMUNICATIONS CO.
46309 Warm Springs Blvd.
Fremont, CA 94539
(415) 438-5000
PRICE: $195
HARDWARE: Hard disk, CGA, EGA, VGA, or Hercules graphics
MIN. MEMORY: 384 KB (640 KB recommended)
OPERATING SYSTEM: DOS 2.1 or later
FIRST INSTALLED: 1989

PRODUCT: EZ-FAX 48/96
COMPANY: CALCULUS, INC.
522 Mercury Dr.
Sunnyvale, CA 94086-4018
(408) 733-7800
PRICE: $199/$299
HARDWARE: Hard disk
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: DOS 2.1 or later
FIRST INSTALLED: 1990

PRODUCT: SMARTFAX/48
COMPANY: AMERICAN DATA TECHNOLOGY, INC.
44 W. Bellevue Dr., #6
Pasedena, CA 91105
(818) 578-1339
PRICE: $499/$299
HARDWARE: Hard disk, CGA, EGA, Hercules nonochrome monitor
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: DOS 2.0 or later
FIRST INSTALLED: 1990

PRODUCT: HAYES JT FAX 4800B
COMPANY: HAYES MICROCOMPUTER PRODUCTS, INC.
705 Westech Dr.
Norcross, GA 30092
(404) 441-1617
PRICE: $295
HARDWARE: Hard disk
MIN. MEMORY: 180 KB RAM
OPERATING SYSTEM: DOS 2.1 or later
FIRST INSTALLED: 1987

PRODUCT: SENDFAX MODEM 4800
COMPANY: CARDINAL TECHNOLOGIES INC.
1827 Freedom Rd.
Lancaster, PA 17601
(800) 722-0094, (717) 293-3000
PRICE: $249
HARDWARE:
MIN. MEMORY: 256 KB RAM
OPERATING SYSTEM: DOS 2.0 or later
FIRST INSTALLED: 1989

PRODUCT: CONNECTION COPROCESSOR
COMPANY: INTEL PCEO
Mailstop CO3-07
5200 NE Elam Young Pkwy
Hillsboro, OR 97124-6497
(800) 538-3373
PRICE: $695
HARDWARE: Hard disk, CGA, EGA, VGA, or Hercules graphics, mouse recommended
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: DOS 3.0 or later
FIRST INSTALLED: 1988

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[1]Byrd, Mike, "Fax Boards Deliver", PC Magazine, August 1990: 303-358.
[2]IBID.
[3]DATA SOURCES, Hardware, Vol. 1, 1st Edition, 1991.

SCANNERS[1]

Although scanners have had a relatively slow start, their acceptance as a serious instrument that can add significant benefits to data processing systems has recently accelerated. The hand scanner provides an inexpensive way to include "hardcopy" text and art work in a word processing system. Much less expensive than a standalone scanner, the hand scanners do lose some of their appeal because they are not as easy to use as one would think. In addition, if the integral software has not been properly designed and integrated then scanning a document into the PC can be difficult.

Matching physical specifications and requirements of a particular scanner to a PC configuration is probably the easiest part of selecting the right product. The most difficult is deciding on what is acceptable quality for documents scanned in as well as the output from them. The images produced above 200 dpi are only marginally better therefore the money spent for scanners that scan above that may not provide a very high return on investment. As with almost any product today, one must be careful to purchase a product that includes adequate documentation. In the case of scanners, that documentation covers both the installation of the hardware, the software and the operation of the software.

The IC help desk can greatly benefit from the use of a scanner when working in an environment that is highly tied to hardcopy, especially when a large volume of "outside" hardcopy is being received. For example, hardcopy work orders can be scanned into a system and routed to many within the IC simultaneously. That same document, once scanned in, can be added to the historical data base for later search or review. As mentioned in the fax board section of this report, documents stored on disk can be faxed without being reduced to paper. However, if the document is already on paper, scanning that document onto disk is quicker than rekeying it. The hand scanner provides an inexpensive way of getting those documents on a list.

Included are features that should be considered in the evaluation of hand scanners. Note that the characteristics of the sample products do not vary much. However, the price of the products do. This can be attributed to some extent to the bundled software that comes with the scanner. In selecting a scanner the requirement of interfacing the scanned document with other systems must be considered. Therefore, the "most" expensive scanner may not be so expensive if all required software is included in the purchase.

SCANNERS
FEATURES[2]

	Complete Half Page Scanner/GS	Logitech Scanman Model 256	Marstek M-800W	Niscan/GS for Windows	DFI CHS-4000	GeniScan GS-C105 Plus
LIST PRICE	$349	$499	$459	$399	$695	$799
FEATURES						
HARDWARE						
Size	4in	4 in	4in	4 in	4in	4 in
Gray scale	256	256	64	256	256	256
Scan resolution	100-400	100-400	100-800	25-400	100-400	100-400
Bit modes	1,4,8	1,2,4,8				
Scan restrictions	does not scan 4 in above 200 dpi and 4 bits	N /A			200 dpi max resolution w/256 colors	
SOFTWARE						
Bundled with	Image-in	Ansel	Image-In	Image-In	P C Paintbrush IV Plus	iPhoto, Color Maestro Cat Reader OCR
Image Enhancement	Y	Y	Y		Y	Y
Editing tools	Y				Y	Y
Merge/Stitch Capabilities	Y	Y		Y		
DOCUMENTATION	Y	Y	Y, but thin	Y	Y	Y
SUPPORT						
Warranty	2 yr	Lifetime	1 yr	1 yr	1 yr	3 yr
Tech support	Business hrs. BBS	7 days/wk, BBS&BIX	Business hrs.	Business hrs	Business hrs	Business hrs

SCANNERS
COMPANY INFORMATION[3]

PRODUCT: THE COMPLETE HALF-PAGE SCANNER/GS
COMPANY: THE COMPLETE PC
1983 Concourse Drive
San Jose, CA 95131
(800) 634-5558
PRICE: $349
HARDWARE: IBM PC AT, PS/2, 386 or compatible, hard disk, VGA graphics (512KB of video RAM recommended), Windows conpatible mouse
MIN. MEMORY: 512 KB RAM (2 MB for Windows recommended)
OPERATING SYSTEM: MS-DOS 3.1 or later, Windows 3.0
FIRST INSTALLED: 1990

PRODUCT: SCANMAN MODEL 256
COMPANY: LOGITECH, INC.
6505 Kaiser Drive
Fremont, CA 94555
(415) 795-8500, (800) 231-7717
PRICE: $499
HARDWARE: IBM PC AT, PS/2, 386, or compatible, hard disk, Windows compatible graphics card, (VGA graphics with 512 KB of video of RAM recommended), Windows compatible mouse
MIN. MEMORY: 1 MB RAM
OPERATING SYSTEM: MS-DOS 3.1 or higher
FIRST INSTALLED: 1990

PRODUCT: MARSTEK M-800W
COMPANY: MARSTEK, INC.
17795-F Skypark Circle
Irvine, CA 92714
(714) 833-7740
PRICE: $459
HARDWARE: IBM PC AT, PS/2, 386, or compatible, hard disk, Hercules, EGA or VGA graphics (VGA with 512 KB of video RAM recommended, Windows compatible mouse
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS-DOS 3.0 or higher, Windows 3.0
FIRST INSTALLED: 1990

PRODUCT: NISCAN/GS FOR WINDOWS
COMPANY: NISCA INC.
1919 Old Denton Rd., Suite 104
Carrollton, TX 75006
(214) 242-9234
PRICE: $399
HARDWARE: IBM PC AT, PS/2, 386, or compatible, hard disk, CGA, EGA, VGA, or 8514/A graphics (VGA or 8514/A with 512 KB of video RAM recommended, Windows compatible mouse
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS-DOS 3.1 or higher, Windows 3.0
FIRST INSTALLED: 1990

PRODUCT: DFI CHS-4000 HANDY SCANNER
COMPANY: DFI INC.
2544 Port St., West
Sacramento, CA 95691
(916) 373-1234
PRICE: $695
HARDWARE: IBM PC AT, PS/2, 386 or compatible, hard disk, EGA or VGA graphics (VGA with 512 KB of video RAM recommended), Microsoft compatible mouse
MIN. MEMORY: 512 KB RAM
OPERATING SYSTEM: MS-DOS 3.0 or later
FIRST INSTALLED: 1990

PRODUCT: GENISCAN GS-105 PLUS
COMPANY: GENIUS, a division of KYE International Corp.
2605 E. Cedar St.
Ontario, CA 91761
(714) 923-3510
PRICE: $799 ($649 without iPhoto)
HARDWARE: IBM PC AT, PS/2 386, or compatible, hard disk, EGA or VGA graphics (VGA with 512 KB of video RAM recommended)
MIN. MEMORY: 640 KB RAM
OPERATING SYSTEM: MS-DOS 3.1 or laer, Windows 2.0 or later required for iPhoto image editor
FIRST INSTALLED: 1990

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[1] Grumen, Galen, "Scanning on a Budget", Infoworld, April 29, 1991: 51-62.
[2] IBID.
[3] Data Sources, Hardware, Vol . 1, 1st Edition, 1991.

ENCLOSURE 11

INDIVIDUAL IC ANALYSIS

Individual Information Center Analysis

An analysis of the individual IC responses was conducted to determine: (1) the range or level of support provided by each IC; and, (2) if problems in providing support existed due to lack of hardware or software. To make those determinations the IC responses were studied in relationship to the following three issues:

1. Does the IC provide service to end users in all five IMA disciplines?

2. Does the IC provide a full range of support in the disciplines that it does support?

3. Do problems in providing support exist due to lack of hardware or software?

Based on these issues the following findings and conclusions were made:

Site 1.

Findings

- The IC provides support in automation discipline only.
- A very high level of automation support is provided by the IC with a full range of support available through other DOIM organizations. The IC functions as a quick reaction team, performing short duration projects.
- No specific hardware problems exist that affect the operation of the IC.
- Software is needed to improve internal operation of the IC and particularly the help desk.

Conclusion

Information Center does not function as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 2.

Findings

- The IC provides support in automation discipline only.
- A full range of automation support is not provided by the IC. The IC functions as an IC for ICs by developing policies, standards and guidelines.
- No specific hardware or software problems exist that affect the operation of the IC.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users of IMA services.

Site 3.

Findings

- The IC provides service in all IMA disciplines.
- A good level of support is provided by the IC with a full range of support available through other DOIM organizations.
- No specific hardware problems exist that affect the operation of the IC.
- Software is needed to improve internal operation of the IC and particularly the help desk.

Conclusion

The Information Center functions as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 4.

Findings

- The IC provides support in automation discipline only.
- A high level of automation support is provided by the IC with a full range of support available through other DOIM organizations.
- No specific hardware or software problems exist that affect the operation of the IC.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 5.

Findings

- The IC provides support in automation discipline only.
- The level of automation support provided by the IC is limited to software only with a full range of support available through other DOIM organizations.
- No specific hardware problems exist that affect the operation of the IC.
- Software is needed to improve internal operation of the IC and particularly the help desk. The IC is currently developing a set of programs to assist in operating the help desk.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users of IMA services. Software

is needed to help the IC better manage the help desk services.

Site 6.

Findings
- The IC provides service in all IMA disciplines except communications.
- A good level of support is provided by the IC.
- No specific hardware problems exist the affect the operation of the IC.
- Software is needed to improve internal operations of the IC.
- The organization does not have a formal IC established due to shortage of personnel. No help desk exists so customers call the technicians directly to get work done.

Conclusion
Although the organization is not a formal IC the work done is that of an IC. With the exception of communications the organization functions as a central point of contact for end users of IMA services.

Site 7.

Findings
- The IC provides service in all IMA disciplines.
- The level of support provided by the IC varies within the disciplines however a full range of support is available through other DOIM organizations. The IC is heavily involved in automation and visual information.
- No specific hardware problems exist that affect the operation of the IC.
- Software is needed to improve internal operation of the IC and particularly the help desk. The IC has software to manage inventory and track procurement.

Conclusion
The Information Center functions as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 8.

Findings
- The IC provides support in automation discipline only.
- A high level of automation support is provided by the IC.
- No specific hardware problems exist that affect the operation of the IC.
- Software is needed to improve internal operation of the IC and particularly the help desk. The IC is currently developing a help desk expert system to assist with trouble shooting.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 9.

Findings

- The IC provides support in automation discipline only.
- A high level of automation support is provided by the IC with a full range of support available through other DOIM organizations.
- No specific hardware or software problems exist that affect the operation of the IC.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

Site 10.

Findings

- The IC provides support in automation discipline only.
- A high level of automation support is provided by the IC with a full range of support available through other DOIM organizations.
- No specific hardware or software problems exist that affect the operation of the IC. The IC has developed a program to log all calls, equipment work orders, work order close out and problem resolution.

Conclusion

The Information Center does not function as an integrated, central point of contact for end users on IMA services. Software is needed to help the IC better manage the help desk services.

ENCLOSURE 12

CONSOLIDATED INTERVIEW CHECKLIST

INFORMATION CENTER PROJECT
SUPPORT PROVIDED BY DISCIPLINE AND FUNCTION

DISCIPLINE: AUTOMATION **FUNCTION: NEEDS ASSESSMENT**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Cost Benefit Analysis	Y		Y	Y		Y	Y	Y		Y
Disaster Recovery	Y							Y		Y
Documentation							Y	Y		Y
Group Purchases				Y	Y		Y			Y
Equipment/Systems/Software										
Justification Assistance	Y			Y		Y	Y	Y	Y	Y
Specifications	Y	Y		Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Requirements Definition			Y	Y		Y				Y

DISCIPLINE: AUTOMATION

FUNCTION: PROBLEM SOLVING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Development	Y		Y				Y	Y		
Applications Development Library	Y		Y		Y	Y	Y	Y		Y
Applications Problem Resolution	Y			Y	Y	Y	Y	Y	Y	Y
Classroom Training	Y		Y	Y	Y	Y	Y	Y	Y	Y
Computer Based Instruction	Y		Y			Y	Y	Y	Y	Y
Cost Benefit Analysis	Y		Y	Y		Y	Y	Y		Y
Custom Programming	Y		Y				Y	Y	Y	
Data Administration				Y						
Demonstrations (staff/vendor)	Y	Y	Y	Y	Y	Y	Y	Y		Y
Desktop Publishing Support			Y	Y	Y	Y	Y	Y	Y	Y
Disaster Recovery	Y							Y		Y
Documentation							Y	Y		Y
Electronic Mail Support	Y		Y	Y		Y	Y	Y	Y	Y
Equipment Repair/Maintenance	Y		Y	Y		Y		Y	Y	Y
Film Series						Y	Y		Y	Y
Graphics Production	Y				Y	Y		Y	Y	Y
Group Purchases				Y	Y		Y			
Handicapped Employee Assistance	Y		Y	Y			Y	Y	Y	Y
Equipment/Systems/Software										
Acquisition	Y			Y	Y	Y	Y	Y		Y
Configuration	Y		Y	Y		Y	Y	Y	Y	Y
Evaluation			Y	Y	Y	Y	Y	Y	Y	Y
Installation			Y	Y	Y	Y	Y	Y	Y	Y
Justification Assistance	Y			Y		Y	Y	Y		Y
Policy Guidelines/Standards	Y	Y		Y	Y	Y	Y	Y	Y	Y
Problem Diagnosis	Y			Y	Y	Y	Y	Y		Y
Procurement Processing	Y				Y	Y	Y			Y
Procurement Review/Approval			Y	Y	Y	Y	Y			Y
Specifications	Y	Y	Y	Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Inventory Management					Y	Y	Y			Y
Linkage to Data Bases			Y				Y			Y
Loaner Equipment			Y	Y			Y	Y	Y	Y
Monitor Access to Corporate Data				Y						
Down Load Data for Manipulation on Micro				Y		Y				Y
Needs Analysis/User Requirements Definition		Y	Y	Y		Y				Y
Newsletter					Y	Y	Y	Y		Y
Office Automation Planning	Y		Y	Y	Y	Y	Y	Y		Y
One-on-one Training	Y			Y	Y	Y		Y		Y
On-going Applications Support	Y			Y						Y
Public Domain Software	Y		Y		Y			Y	Y	Y
Resource Groups/Persons	Y		Y	Y		Y	Y		Y	Y
Seminars	Y			Y			Y		Y	
System Design	Y			Y		Y	Y	Y		Y
Technical Library	Y	Y	Y	Y			Y	Y		Y
Technology Update/Briefing	Y		Y	Y	Y	Y	Y	Y	Y	Y
Time Sharing Support	Y			Y						
User Group	Y		Y		Y		Y		Y	
User's Guide	Y			Y				Y	Y	Y
Video Tapes							Y		Y	Y

DISCIPLINE: AUTOMATION

FUNCTION: TRAINING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training	Y		Y	Y	Y	Y	Y	Y	Y	Y
Computer Based Instruction	Y		Y			Y	Y	Y	Y	Y
Demonstrations (staff/vendor)	Y	Y	Y	Y	Y	Y	Y	Y		Y
Desktop Publishing Support			Y	Y	Y	Y	Y	Y	Y	Y
Disaster Recovery	Y							Y		Y
Documentation							Y	Y		Y
Electronic Mail Support	Y		Y	Y		Y	Y	Y	Y	Y
Expositions	Y	Y	Y	Y					Y	
Film Series						Y	Y		Y	Y
Graphics Production	Y				Y	Y		Y	Y	Y
Group Purchases				Y	Y		Y			Y
Handicapped Employee Assistance	Y		Y	Y			Y	Y	Y	Y
Equipment/Systems/Software Installation			Y	Y	Y	Y	Y	Y	Y	Y
Policy Guidelines/Standards	Y	Y		Y	Y	Y	Y	Y	Y	Y
Problem Diagnosis	Y			Y	Y	Y	Y	Y		Y
Procurement Processing	Y				Y	Y	Y			Y
Procurement Review/Approval			Y	Y	Y	Y	Y			Y
Specifications	Y	Y	Y	Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Linkage to Data Bases			Y				Y			Y
Loaner Equipment			Y	Y			Y	Y	Y	Y
Needs Analysis/User Requirements Definition		Y	Y	Y		Y				Y
Newsletter					Y	Y	Y	Y		Y
One-on-one Training	Y			Y	Y	Y		Y	Y	
On-going Applications Support	Y			Y						Y
Public Domain Software	Y		Y		Y			Y	Y	Y
Seminars	Y			Y			Y		Y	
Technical Library	Y	Y	Y	Y			Y	Y		Y
Technology Update/Briefing	Y		Y	Y	Y	Y	Y	Y	Y	Y
Time Sharing Support	Y			Y						
User Group	Y		Y		Y		Y		Y	
User's Guide	Y			Y				Y	Y	Y
Video Tapes							Y		Y	Y
Vendor Display Area	Y	Y	Y	Y	Y	Y	Y		Y	Y

DISCIPLINE: AUTOMATION

FUNCTION: IMP INITIATIVE

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training	Y		Y	Y	Y	Y	Y	Y	Y	Y
Computer Based Instruction	Y		Y			Y	Y	Y	Y	Y
Cost Benefit Analysis	Y		Y	Y		Y	Y	Y		Y
Data Administration				Y						
Disaster Recovery	Y							Y		Y
Group Purchases				Y	Y		Y			Y
Handicapped Employee Assistance	Y		Y	Y			Y	Y	Y	Y
Equipment/Systems/Software Acquisition	Y			Y	Y	Y	Y	Y		Y
Configuration	Y		Y	Y		Y	Y	Y	Y	Y
Evaluation			Y	Y	Y	Y	Y	Y	Y	Y
Justification Assistance	Y			Y		Y	Y	Y		Y
Policy Guidelines/Standards	Y	Y		Y	Y	Y	Y	Y	Y	Y
Procurement Processing	Y				Y	Y	Y			Y
Procurement Review/Approval			Y	Y	Y	Y	Y			Y
Specifications	Y	Y	Y	Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Inventory Management					Y	Y	Y			Y
Loaner Equipment			Y	Y			Y	Y	Y	Y
Needs Analysis/User Requirements Definition		Y	Y	Y		Y				Y
Office Automation Planning	Y		Y	Y	Y	Y	Y			Y
Resource Groups/Persons	Y		Y	Y		Y	Y		Y	Y
System Design	Y			Y		Y	Y	Y		Y
Technical Library	Y	Y		Y			Y	Y		Y
Technology Update/Briefing	Y		Y	Y	Y	Y	Y	Y		Y
User Group	Y		Y		Y		Y		Y	

DISCIPLINE: AUTOMATION

FUNCTION: ACQUISITION

	SITE									
	1	2	3	4	5	6	7	8	9	10
Demonstrations (staff/vendor)	Y	Y	Y	Y	Y	Y	Y	Y		Y
Documentation							Y	Y		Y
Equipment Repair/Maintenance	Y		Y	Y		Y		Y	Y	Y
Expositions	Y	Y	Y	Y					Y	
Film Series						Y	Y		Y	Y
Group Purchases				Y	Y		Y			Y
Handicapped Employee Assistance	Y		Y	Y			Y	Y	Y	Y
Equipment/Systems/Software Acquisition	Y			Y	Y	Y	Y	Y		Y
Configuration	Y		Y	Y		Y	Y	Y	Y	Y
Evaluation			Y	Y	Y	Y	Y	Y	Y	Y
Installation			Y	Y	Y	Y	Y	Y	Y	Y
Justification Assistance	Y			Y		Y	Y	Y		Y
Policy Guidelines/Standards	Y	Y		Y	Y	Y	Y	Y	Y	Y
Procurement Processing	Y				Y	Y	Y			Y
Procurement Review/Approval			Y	Y	Y	Y	Y			Y
Specifications	Y	Y	Y	Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Inventory Management					Y	Y	Y			Y
Loaner Equipment			Y	Y			Y	Y	Y	Y
Needs Analysis/User Requirements Definition		Y	Y	Y		Y				Y
Office Automation Planning	Y		Y	Y	Y	Y	Y			Y
Resource Groups/Persons	Y		Y	Y		Y	Y		Y	Y
Seminars	Y			Y			Y		Y	
System Design	Y			Y		Y	Y	Y		Y
Technical Library	Y	Y	Y	Y			Y	Y		Y
Technology Update/Briefing	Y		Y	Y	Y	Y	Y	Y	Y	Y
User's Guide	Y			Y				Y	Y	Y
Video Tapes							Y		Y	Y
Vendor Display Area	Y	Y	Y	Y	Y	Y	Y		Y	Y

DISCIPLINE: AUTOMATION FUNCTION: MAINTENANCE

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Problem Resolution	Y			Y	Y	Y	Y	Y	Y	Y
Classroom Training	Y		Y	Y	Y	Y	Y	Y	Y	Y
Computer Based Instruction	Y		Y			Y	Y	Y	Y	Y
Cost Benefit Analysis	Y		Y	Y		Y	Y	Y		Y
Demonstrations (staff/vendor)	Y	Y	Y	Y	Y	Y	Y	Y		Y
Desktop Publishing Support			Y	Y	Y	Y	Y	Y	Y	Y
Disaster Recovery	Y							Y		Y
Documentation							Y	Y		Y
Electronic Mail Support	Y		Y	Y		Y	Y	Y	Y	Y
Equipment Repair/Maintenance	Y		Y	Y		Y		Y	Y	Y
Expositions	Y	Y	Y	Y					Y	
Handicapped Employee Assistance	Y		Y	Y			Y	Y	Y	Y
Equipment/Systems/Software Acquisition	Y			Y	Y	Y	Y	Y		Y
Configuration	Y		Y	Y		Y	Y	Y	Y	Y
Evaluation			Y	Y	Y	Y	Y	Y	Y	Y
Installation			Y	Y	Y	Y	Y	Y	Y	Y
Justification Assistance	Y			Y		Y	Y	Y		Y
Policy Guidelines/Standards	Y	Y		Y	Y	Y	Y	Y	Y	Y
Problem Diagnosis	Y			Y	Y	Y	Y	Y		Y
Procurement Review/Approval			Y	Y	Y	Y	Y			Y
Specifications	Y	Y	Y	Y		Y	Y		Y	Y
Testing/Evaluation				Y		Y	Y	Y	Y	Y
Help/Hot Line, Help Desk	Y		Y	Y	Y		Y	Y	Y	Y
Inventory Management					Y	Y	Y			Y
Loaner Equipment			Y	Y			Y	Y	Y	Y
Needs Analysis/User Requirements Definition		Y	Y	Y		Y				Y
One-on-one Training	Y			Y	Y	Y			Y	
Resource Groups/Persons	Y		Y	Y		Y	Y		Y	Y
Seminars	Y			Y			Y		Y	
System Design	Y			Y		Y	Y	Y		Y
Technical Library	Y	Y	Y	Y			Y	Y		Y
Technology Update/Briefing	Y		Y	Y	Y	Y	Y	Y	Y	Y
User Group	Y		Y		Y		Y		Y	
User's Guide	Y			Y				Y	Y	Y
Video Tapes							Y		Y	Y

INFORMATION CENTER PROJECT
SUPPORT PROVIDED BY DISCIPLINE AND FUNCTION

DISCIPLINE: COMMUNICATIONS **FUNCTION: NEEDS ASSESSMENT**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Cost Benefit Analysis										
Disaster Recovery										
Documentation										
Group Purchases										
Equipment/Systems/Software										
Justification Assistance										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Requirements Definition										

DISCIPLINE: COMMUNICATIONS

FUNCTION: PROBLEM SOLVING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Development							Y			
Applications Development Library							Y			
Applications Problem Resolution							Y			
Classroom Training							Y			
Computer Based Instruction										
Cost Benefit Analysis										
Custom Programming										
Data Administration										
Demonstrations (staff/vendor)										
Desktop Publishing Support										
Disaster Recovery										
Documentation										
Electronic Mail Support										
Equipment Repair/Maintenance										
Film Series							Y			
Graphics Production										
Group Purchases										
Handicapped Employee Assistance										
Equipment/Systems/Software										
Acquisition										
Configuration										
Evaluation										
Installation									Y	
Justification Assistance										
Policy Guidelines/Standards										
Problem Diagnosis										
Procurement Processing										
Procurement Review/Approval										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Inventory Management										
Linkage to Data Bases										
Loaner Equipment										
Monitor Access to Corporate Data										
Down Load Data for Manipulation on Micro										
Needs Analysis/User Requirements Definition										
Newsletter										
Office Automation Planning										
One-on-one Training										
On-going Applications Support										
Public Domain Software										
Resource Groups/Persons										
Seminars										
System Design										
Technical Library										
Technology Update/Briefing										
Time Sharing Support										
User Group										
User's Guide										
Video Tapes										

DISCIPLINE: COMMUNICATIONS

FUNCTION: TRAINING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training										
Computer Based Instruction										
Demonstrations (staff/vendor)										
Desktop Publishing Support										
Disaster Recovery										
Documentation										
Electronic Mail Support										
Expositions										
Film Series										
Graphics Production										
Group Purchases										
Handicapped Employee Assistance										
Equipment/Systems/Software										
Installation										
Policy Guidelines/Standards										
Problem Diagnosis										
Procurement Processing										
Procurement Review/Approval										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Linkage to Data Bases										
Loaner Equipment										
Needs Analysis/User Requirements Definition										
Newsletter										
One-on-one Training										
On-going Applications Support										
Public Domain Software										
Seminars										
Technical Library										
Technology Update/Briefing										
Time Sharing Support										
User Group										
User's Guide										
Video Tapes										
Vendor Display Area										

DISCIPLINE: COMMUNICATIONS FUNCTION: IMP INITIATIVE

	SITE 1	2	3	4	5	6	7	8	9	10
Classroom Training										
Computer Based Instruction										
Cost Benefit Analysis										
Data Administration										
Disaster Recovery										
Group Purchases										
Handicapped Employee Assistance										
Equipment/Systems/Software										
Acquisition										
Configuration										
Evaluation										
Justification Assistance										
Policy Guidelines/Standards										
Procurement Processing										
Procurement Review/Approval										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Inventory Management										
Loaner Equipment										
Needs Analysis/User Requirements Definition										
Office Automation Planning										
Resource Groups/Persons										
System Design										
Technical Library										
Technology Update/Briefing										
User Group										

DISCIPLINE: COMMUNICATIONS

FUNCTION: ACQUISITION

	SITE									
	1	2	3	4	5	6	7	8	9	10
Demonstrations (staff/vendor)										
Documentation										
Equipment Repair/Maintenance										
Expositions										
Film Series										
Group Purchases										
Handicapped Employee Assistance										
Equipment/Systems/Software										
Acquisition										
Configuration										
Evaluation										
Installation										
Justification Assistance										
Policy Guidelines/Standards										
Procurement Processing										
Procurement Review/Approval										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Inventory Management										
Loaner Equipment										
Needs Analysis/User Requirements Definition										
Office Automation Planning										
Resource Groups/Persons										
Seminars										
System Design										
Technical Library										
Technology Update/Briefing										
User's Guide										
Video Tapes										
Vendor Display Area										

DISCIPLINE: COMMUNICATIONS

FUNCTION: MAINTENANCE

	SITE 1	2	3	4	5	6	7	8	9	10
Applications Problem Resolution										
Classroom Training										
Computer Based Instruction										
Cost Benefit Analysis										
Demonstrations (staff/vendor)										
Desktop Publishing Support										
Disaster Recovery										
Documentation										
Electronic Mail Support										
Equipment Repair/Maintenance										
Expositions										
Handicapped Employee Assistance										
Equipment/Systems/Software										
Acquisition										
Configuration										
Evaluation										
Installation										
Justification Assistance										
Policy Guidelines/Standards										
Problem Diagnosis										
Procurement Review/Approval										
Specifications										
Testing/Evaluation										
Help/Hot Line, Help Desk			Y							
Inventory Management										
Loaner Equipment										
Needs Analysis/User Requirements Definition										
One-on-one Training										
Resource Groups/Persons										
Seminars										
System Design										
Technical Library										
Technology Update/Briefing										
User Group										
User's Guide										
Video Tapes										

INFORMATION CENTER PROJECT
SUPPORT PROVIDED BY DISCIPLINE AND FUNCTION

DISCIPLINE: PRINTING AND PUBLICATION **FUNCTION: NEEDS ASSESSMENT**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Cost Benefit Analysis			Y			Y				
Disaster Recovery										
Documentation										
Group Purchases										
Equipment/Systems/Software										
Justification Assistance						Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Requirements Definition			Y			Y				

DISCIPLINE: PRINTING AND PUBLICATION FUNCTION: PROBLEM SOLVING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Development			Y				Y			
Applications Development Library			Y			Y	Y			
Applications Problem Resolution						Y	Y			
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Custom Programming										
Data Administration										
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support			Y			Y	Y	Y		
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Film Series						Y				
Graphics Production						Y	Y			
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y	Y			
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y				
Linkage to Data Bases										
Loaner Equipment										
Monitor Access to Corporate Data										
Down Load Data for Manipulation on Micro						Y				
Needs Analysis/User Requirements Definition			Y			Y				
Newsletter						Y	Y			
Office Automation Planning						Y				
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y							
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes										

DISCIPLINE: PRINTING AND PUBLICATION FUNCTION: TRAINING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support			Y			Y	Y	Y		
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Expositions										
Film Series						Y				
Graphics Production						Y	Y			
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Installation			Y			Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Linkage to Data Bases										
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Newsletter						Y	Y			
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y			Y				
Seminars										
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes										
Vendor Display Area			Y			Y				

DISCIPLINE: PRINTING AND PUBLICATION FUNCTION: IMP INITIATIVE

	SITE								
	1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Data Administration										
Disaster Recovery										
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y	Y			
Evaluation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Office Automation Planning						Y				
Resource Groups/Persons						Y				
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User Group			Y							

DISCIPLINE: PRINTING AND PUBLICATION FUNCTION: ACQUISITION

	SITE									
	1	2	3	4	5	6	7	8	9	10
Demonstrations (staff/vendor)			Y			Y	Y			
Documentation										
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Film Series						Y				
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y	Y			
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Office Automation Planning						Y				
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User's Guide										
Video Tapes										
Vendor Display Area			Y			Y				

DISCIPLINE: PRINTING AND PUBLICATION FUNCTION: MAINTENANCE

	SITE								
	1	2	3	4	5	6	7	8	9	10
Applications Problem Resolution						Y	Y			
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support			Y			Y	Y	Y		
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Handicapped Employee Assistance			Y							
Equipment/Systems/Software Acquisition										
Configuration			Y			Y	Y			
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
One-on-one Training						Y				
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User Group			Y							
User's Guide										
Video Tapes										

INFORMATION CENTER PROJECT
SUPPORT PROVIDED BY DISCIPLINE AND FUNCTION

DISCIPLINE: RECORDS MANAGEMENT **FUNCTION: NEEDS ASSESSMENT**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Cost Benefit Analysis			Y			Y				
Disaster Recovery										
Documentation										
Group Purchases										
Equipment/Systems/Software										
Justification Assistance						Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Requirements Definition			Y			Y				

DISCIPLINE: RECORDS MANAGEMENT

FUNCTION: PROBLEM SOLVING

	SITE								
	1	2	3	4	5	6	7	8	9	10
Applications Development			Y				Y			
Applications Development Library			Y				Y			
Applications Problem Resolution							Y			
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Custom Programming										
Data Administration										
Demonstrations (staff/vendor)			Y			Y				
Desktop Publishing Support						Y				
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Film Series						Y				
Graphics Production						Y				
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software Acquisition						Y				
Configuration			Y			Y				
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Inventory Management						Y				
Linkage to Data Bases										
Loaner Equipment										
Monitor Access to Corporate Data										
Down Load Data for Manipulation on Micro						Y				
Needs Analysis/User Requirements Definition			Y			Y				
Newsletter						Y				
Office Automation Planning						Y				
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y							
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y							
Technology Update/Briefing			Y			Y				
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes										

DISCIPLINE: RECORDS MANAGEMENT **FUNCTION: TRAINING**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Demonstrations (staff/vendor)			Y			Y				
Desktop Publishing Support						Y				
Disaster Recovery Documentation										
Electronic Mail Support						Y				
Expositions										
Film Series						Y				
Graphics Production						Y				
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Installation			Y			Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Linkage to Data Bases										
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Newsletter						Y				
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y							
Seminars										
Technical Library			Y							
Technology Update/Briefing			Y			Y				
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes										
Vendor Display Area			Y			Y				

DISCIPLINE: RECORDS MANAGEMENT

FUNCTION: IMP INITIATIVE

	SITE 1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Data Administration										
Disaster Recovery										
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y				
Evaluation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Office Automation Planning						Y				
Resource Groups/Persons			Y			Y				
System Design						Y				
Technical Library			Y							
Technology Update/Briefing			Y			Y				
User Group			Y							

DISCIPLINE: RECORDS MANAGEMENT **FUNCTION: ACQUISITION**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Demonstrations (staff/vendor)			Y			Y				
Documentation										
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Film Series						Y				
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y				
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
Office Automation Planning						Y				
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y							
Technology Update/Briefing			Y			Y				
User's Guide										
Video Tapes										
Vendor Display Area			Y			Y				

DISCIPLINE: RECORDS MANAGEMENT **FUNCTION: MAINTENANCE**

	SITE								
	1	2	3	4	5	6	7	8	9	10
Applications Problem Resolution							Y			
Classroom Training			Y			Y				
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y				
Demonstrations (staff/vendor)			Y			Y				
Desktop Publishing Support						Y				
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				
Configuration			Y			Y				
Evaluation			Y			Y				
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Review/Approval			Y			Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y							
Inventory Management						Y				
Loaner Equipment										
Needs Analysis/User Requirements Definition			Y			Y				
One-on-one Training						Y				
Resource Groups/Persons			Y			Y				
Seminars										
System Design						Y				
Technical Library			Y							
Technology Update/Briefing			Y			Y				
User Group			Y							
User's Guide										
Video Tapes										

INFORMATION CENTER PROJECT
SUPPORT PROVIDED BY DISCIPLINE AND FUNCTION

DISCIPLINE: VISUAL INFORMATION **FUNCTION: NEEDS ASSESSMENT**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Cost Benefit Analysis			Y			Y	Y			
Disaster Recovery										
Documentation										
Group Purchases										
Equipment/Systems/Software										
Justification Assistance						Y				
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot line, Help Desk			Y				Y			
Requirements Definition			Y			Y				

DISCIPLINE: VISUAL INFORMATION FUNCTION: PROBLEM SOLVING

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Development			Y				Y			
Applications Development Library			Y				Y			
Applications Problem Resolution							Y			
Classroom Training			Y			Y	Y			
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y	Y			
Custom Programming			Y							
Data Administration										
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support						Y	Y			
Disaster Recovery Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Film Series						Y				
Graphics Production	Y					Y	Y	Y		Y
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y				Y
Configuration			Y			Y	Y			
Evaluation			Y			Y	Y			
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y	Y			
Procurement Review/Approval			Y			Y	Y			
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot line, Help Desk			Y				Y			
Inventory Management						Y	Y			
Linkage to Data Bases										
Loaner Equipment			Y				Y			
Monitor Access to Corporate Data										
Down Load Data for Manipulation on Micro						Y				
Needs Analysis/User Requirements Definition			Y			Y	Y			
Newsletter						Y	Y			
Office Automation Planning						Y	Y			
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y							
Resource Groups/Persons			Y			Y			Y	
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes							Y			

DISCIPLINE: VISUAL INFORMATION **FUNCTION: TRAINING**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y	Y			
Computer Based Instruction			Y			Y				
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support						Y	Y			
Disaster Recovery Documentation										
Electronic Mail Support						Y				
Expositions			Y							
Film series						Y				
Graphics Production	Y					Y	Y	Y		Y
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Installation			Y			Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Processing						Y	Y			
Procurement Review/Approval			Y			Y	Y			
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Linkage to Data Bases										
Loaner Equipment			Y				Y			
Needs Analysis/User Requirements Definition			Y			Y	Y			
Newsletter						Y	Y			
One-on-one Training						Y				
On-going Applications Support										
Public Domain Software			Y							
Seminars										
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
Time Sharing Support										
User Group			Y							
User's Guide										
Video Tapes							Y			
Vendor Display Area			Y			Y				

DISCIPLINE: VISUAL INFORMATION **FUNCTION: IMP INITIATIVE**

	SITE									
	1	2	3	4	5	6	7	8	9	10
Classroom Training			Y			Y	Y			
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y	Y			
Data Administration										
Disaster Recovery										
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y	Y			
Configuration			Y			Y	Y			
Evaluation			Y			Y	Y			
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y	Y			
Procurement Review/Approval			Y			Y	Y			
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y	Y			
Loaner Equipment			Y				Y			
Needs Analysis/User Requirements Definition						Y				
Office Automation Planning						Y	Y			
Resource Groups/Persons			Y			Y			Y	
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User Group			Y							

DISCIPLINE: VISUAL INFORMATION **FUNCTION: ACQUISITION**

	SITE								
	1	2	3	4	5	6	7	8	9	10
Demonstrations (staff/vendor)			Y			Y	Y			
Documentation										
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Film Series						Y				
Group Purchases										
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition						Y	Y			
Configuration			Y			Y	Y			
Evaluation			Y			Y	Y			
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Procurement Processing						Y	Y			
Procurement Review/Approval			Y			Y	Y			
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y	Y			
Loaner Equipment			Y				Y			
Needs Analysis/User Requirements Definition			Y			Y	Y			
Office Automation Planning						Y	Y			
Resource Groups/Persons			Y			Y			Y	
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User's Guide										
Video Tapes							Y			
Vendor Display Area			Y			Y				

DISCIPLINE: VISUAL INFORMATION FUNCTION: MAINTENANCE

	SITE									
	1	2	3	4	5	6	7	8	9	10
Applications Problem Resolution							Y			
Classroom Training			Y			Y	Y			
Computer Based Instruction			Y			Y				
Cost Benefit Analysis			Y			Y	Y			
Demonstrations (staff/vendor)			Y			Y	Y			
Desktop Publishing Support						Y	Y			
Disaster Recovery										
Documentation										
Electronic Mail Support						Y				
Equipment Repair/Maintenance			Y			Y				
Expositions			Y							
Handicapped Employee Assistance			Y							
Equipment/Systems/Software										
Acquisition							Y			
Configuration			Y			Y	Y			
Evaluation			Y			Y	Y			
Installation			Y			Y				
Justification Assistance						Y				
Policy Guidelines/Standards						Y				
Problem Diagnosis						Y				
Procurement Review/Approval			Y			Y	Y			
Specifications			Y			Y				
Testing/Evaluation						Y				
Help/Hot Line, Help Desk			Y				Y			
Inventory Management						Y	Y			
Loaner Equipment			Y				Y			
Needs Analysis/User Requirements Definition			Y			Y				
One-on-one Training						Y				
Resource Groups/Persons			Y			Y			Y	
Seminars										
System Design						Y				
Technical Library			Y				Y			
Technology Update/Briefing			Y			Y	Y			
User Group			Y							
User's Guide										
Video Tapes							Y			

ENCLOSURE 13

TECHNOLOGY SUPPORT

TO

HELP DESK FUNCTIONS

TECHNOLOGY SUPPORT TO HELP DESK FUNCTIONS

	TECHNOLOGY			
	SOFTWARE	HARDWARE		
HELP DESK SUPPORT		OPTICAL DISK DRIVE	SCANNER	FAX BD
NEEDS ASSESSMENT	X	X		
PROBLEM SOLVING	X	X	X	X
TRAINING	X	X		
IMP INITIATIVE	X			
ACQUISITION	X			
MAINTENANCE	X	X	X	X

ENCLOSURE 14

EVALUATION CRITERIA

EVALUATION CRITERIA

Some of the criteria that should be applied when evaluating technology is discussed in this enclosure. The information needed to perform an evaluation is readily available through magazines, catalogues and information technology services. An analysis of the information gathered from these sources with respect to the requirements should identify a product, or possibly a list of products, that will provide the proper level of assistance to the Help Desk. Once an acceptable product or list of products is identified, vendor information can be requested to provide more up-to-date or site specific information for a more detailed analysis. In most cases with software products, vendors will provide a demonstration or "limited use" system for further evaluation. Because each IC is different in many aspects no specific criteria can be established that will fit all cases. Therefore the following presents criteria that should be addressed by the individual IC which, in turn, will assign levels of importance and/or measurable specifications in order to identify the product that best meets the requirements.

A. Software Evaluation

1. Applicability

a. Does the product meet the stated requirements?

b. Are all required functions included in the product or can functions be added on as required or as additional funds become available?

2. Ease of Use

a. Is the man-machine interface acceptable? Are pre-defined key selections easily understood? Are screen designs and colors acceptable?

b. Are the menu selections and screen sequences intuitive? Are the menu selections in a logical sequence? Is there a "novice" and "expert" path through the menu selections?

c. Is proper and understandable terminology used for a particular function? Since most software is written for the commercial customer rather than the military customer, some terminology may be confusing for the military user.

d. Does the software include on-line help?

3. Cost

a. What is included in the package for the price?

b. Is there a lease cost which will provide a "trial" period in which to determine if the software is suitable?

c. Are there many additional features that are not required that are increasing the price?

4. Performance

a. Does the software perform as advertised?

b. When the documentation says to push a specific key for a particular function will the system perform as expected?

c. Does the speed of the system meet the requirements of a Help Desk operation?

5. Licensing Agreement

a. Is a site license available? If so, what is included or how is it limited?

b. Will the vendor allow copying of software for use on multiple machines?

6. Supported Products

a. What other systems or products does the software support or interface with? Can data from a DBMS and a spreadsheet be integrated into the product automatically?

b. Does the system come with "bundled necessaries" of do they have to be purchased separately?

7. System Requirements

a. What hardware is required to run the system? Are specific peripherals such as a mouse required or simply nice to have?

b. What other software is needed to make the system work or produce to its maximum capacity? Does the software run in a Windows environment or is other graphic software required to produce statistical charts/diagrams?

8. Support/Maintenance

a. What type of maintenance is offered for the package?
   (1) On-site
   (2) On call
   (3) Call in
   (4) Bulletin Board System
   (5) Written notices from the manufacturer
   (6) None at all

b. What is the cost of the support?

c. How are those that perform the maintenance contacted?

d. How are updates implemented? Are all upgrades compatible with previous systems?

9. Documentation

a. Does the documentation adequately cover all options or choices on the menus? Does the documentation tell all that is needed to know from the user perspective?

b. Does the documentation tell what to do when the operator makes a mistake? How does the operator recoup from mistakes without losing data?

c. Is the documentation written to the right level of understanding? Can it be understood by the user or is it written for an experienced programmer?

d. Is a technical manual included with the user's manual?

B. Hardware Evaluation

1. Applicability

a. Does the product meet the stated requirements?

b. Are all required functions included with the product or can they be added on as required?

2. Ease of use

a. Can the equipment be readily used without assigning a "dedicated" operator?

b. Can the equipment be easily installed?

3. Cost

a. What is included with the hardware for the price?

b. Is there a lease cost which will provide a "trial" period in which to determine if the hardware is suitable?

4. Performance

a. Does the product perform as advertised?

b. When the documentation says the system performs a particular function will the system perform as expected?

c. Does the speed of the system meet the Help Desk requirements?

5. Licensing Agreement

a. Is a site license available? If so, what is included or how is it limited?

b. Will the vendor allow use of the hardware on multiple machines?

6. Supported Products

a. What systems or products does the hardware support or interface with?

b. What environment does the hardware work in - PC,

mini- or mainframe?

7. System Requirements

a. What hardware is required to complete the system? Are specific peripherals such as a mouse required to make the system work?

b. What other hardware is needed to make the system work or produce to its maximum capacity?

c. How much memory is needed to operate the system?

8. Support/Maintenance

a. What type of maintenance is offered for the equipment?

(1) On-site
(2) On call
(3) Call in/mail in
(4) Bulletin Board System
(5) Written notices from the manufacturer
(6) None at all

b. What is the cost of the support?

c. How are those that perform the maintenance contacted? Are maintenance facilities local?

9. Documentation

a. Does the documentation adequately cover the equipment usage? Does the documentation tell all that is needed to know from the user perspective?

b. Does the documentation tell what to do when the operator makes a mistake? How does the operator recoup from mistakes without losing data?

c. Is the documentation written to the right level of understanding? Can it be understood by the user or is it written for an experienced operator?

d. Does the documentation adequately cover installation? Is a technical manual included with the user's manual?